PHILIPS 28PT4455

MODEL

SERVICE MANUAL

Colour Television **Chassis**

L9.1A

AA 00.02

Service
Service
Service

Service Information

GB

In the 21PT3942 and the two new 21” sets, 21PT3956 & 21PT3962, the mono-carrier PCB-layout L9.1A is introduced to increase the audio power.
Entering the SDM has changed. By connecting pin 20 to ground at cold start.
Entering the SAM has changed. Shorting pin M28 and M29 is no longer valid.

For the 21PT3942 one new panel is added:
- Side AV panel & Headphone (E1)

For the 21PT3956 & 21PT3962 two new panels are added:
- Side AV panel & Headphone (E1)
- Top Control RF (T)

For reference see Service Manual L9.2A - 4822 727 21704.

In the new 34” sets, 34PT4873 & 34PT4822, two new panels are introduced:
- Side AV panel & Headphone (E1)
- Top Control FSQ (T1)

For reference see Service Manual L9.1A - 4822 727 21705.

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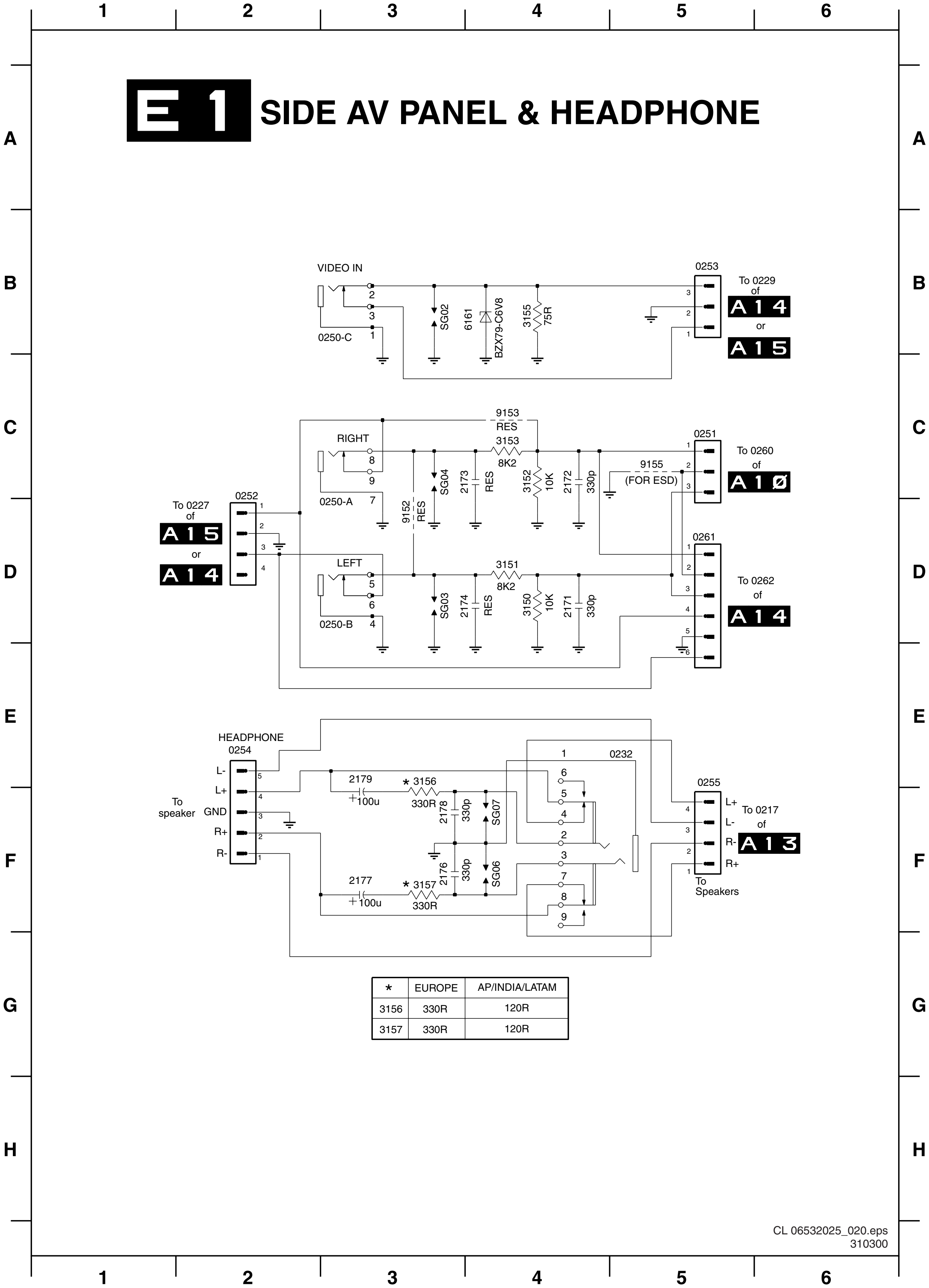
PHILIPS

Electrical diagrams and PWB’s

Side AV panel & headphone

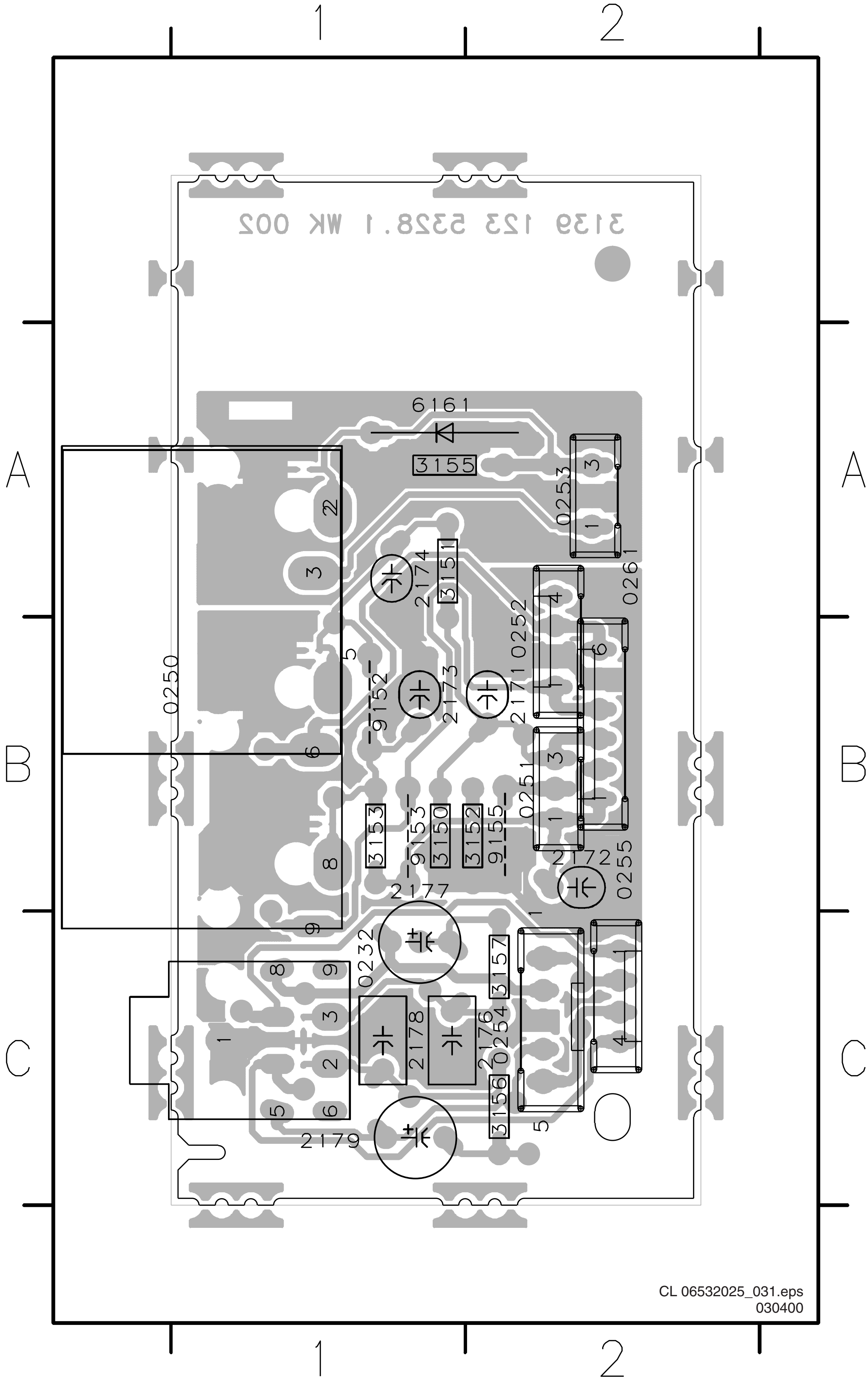
E 1 SIDE AV PANEL & HEADPHONE


1
2
3
4
5
6
A
B
C
D
E
F
G
H
VIDEO IN
0250-C
2
3
1
SG02
6161
BZX79-C6V8
3155
75R
0253
To 0229
of
A14
or
A15
9153
RES
RIGHT
3153
8K2
0250-A
8
9
7
SG04
2173
RES
3152
10K
2172
330p
9155
(FOR ESD)
0251
To 0260
of
A10
To 0227
of
A15
or
A14
0252
9152
RES
LEFT
3151
8K2
0250-B
5
6
4
SG03
2174
RES
3150
10K
2171
330p
0261
To 0262
of
A14
HEADPHONE
0254
L-
L+
GND
R+
R-
To
speaker
2179
100u
* 3156
330R
2178
330p
SG07
2177
100u
* 3157
330R
2176
330p
SG06
0232
0255
L+
L-
R-
R+
To 0217
of
A13
To
Speakers
CL 06532025_020.eps
310300

*	EUROPE	AP/INDIA/LATAM
3156	330R	120R
3157	330R	120R

0232	E4
0250-A	C3
0250-B	D3
0250-C	B3
0251	C5
0252	D2
0253	B5
0254	E2
0255	E5
0261	D5
2171	D4
2172	C4
2173	C4
2174	D4
2176	F3
2177	F3
2178	F3
2179	E3
3150	D4
3151	D4
3152	C4
3153	C4
3155	B4
3156	E3
3157	F3
6161	B3
9152	D3
9153	C4
9155	C5
SG02	B3
SG03	D3
SG04	C3
SG06	F4
SG07	F4

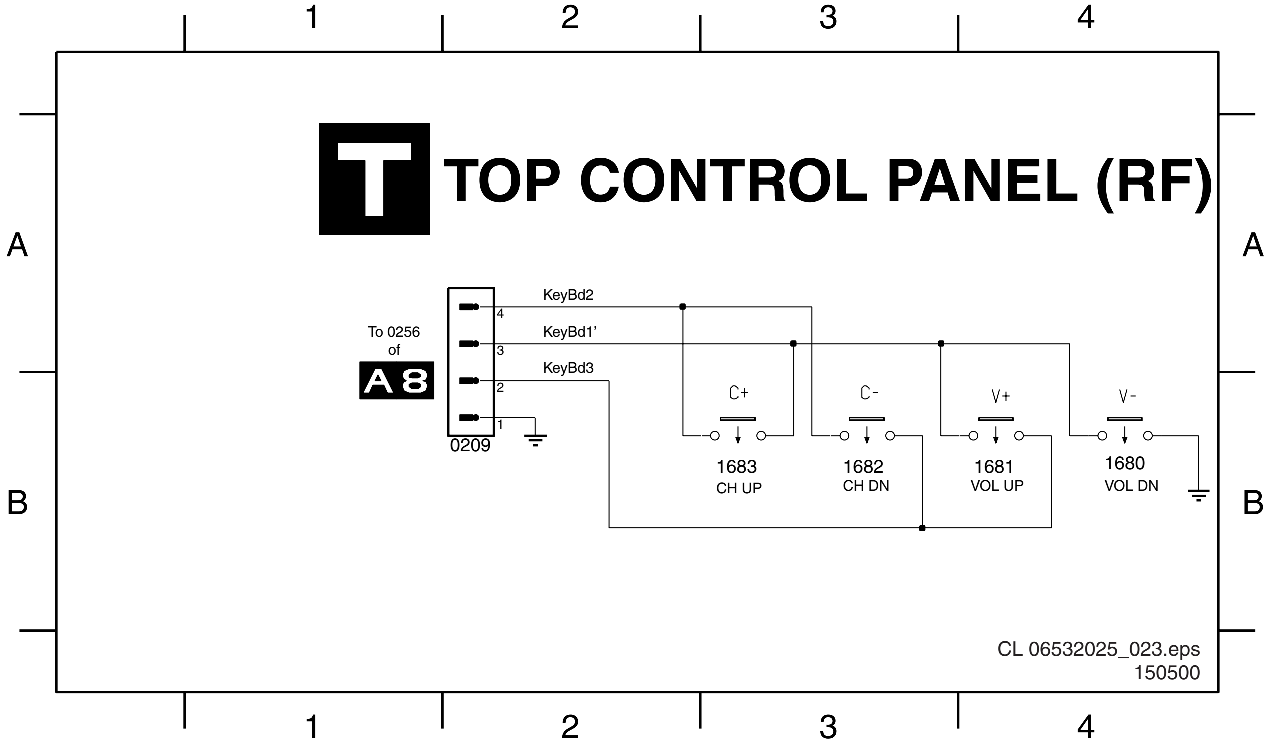
Side AV panel & headphone


1
2
A
B
C
3139 123 5328.1 WK 002
6161
3155
0253
0261
2174
3151
0252
0250
9152
2173
2171
0251
3153
9153
3150
3152
9155
2172
0255
2177
0232
3157
2178
2176
0254
3156
2179

CL 06532025_031.eps
030400

0232	C1
0250	B1
0251	B2
0252	B2
0253	A2
0254	C2
0255	C2
0261	B2
2171	B2
2172	B2
2173	B1
2174	A1
2176	C1
2177	C1
2178	C1
2179	C1
3150	B1
3151	A1
3152	B2
3153	B1
3155	A1
3156	C2
3157	C2
6161	A1
9152	B1
9153	B1
9155	B2

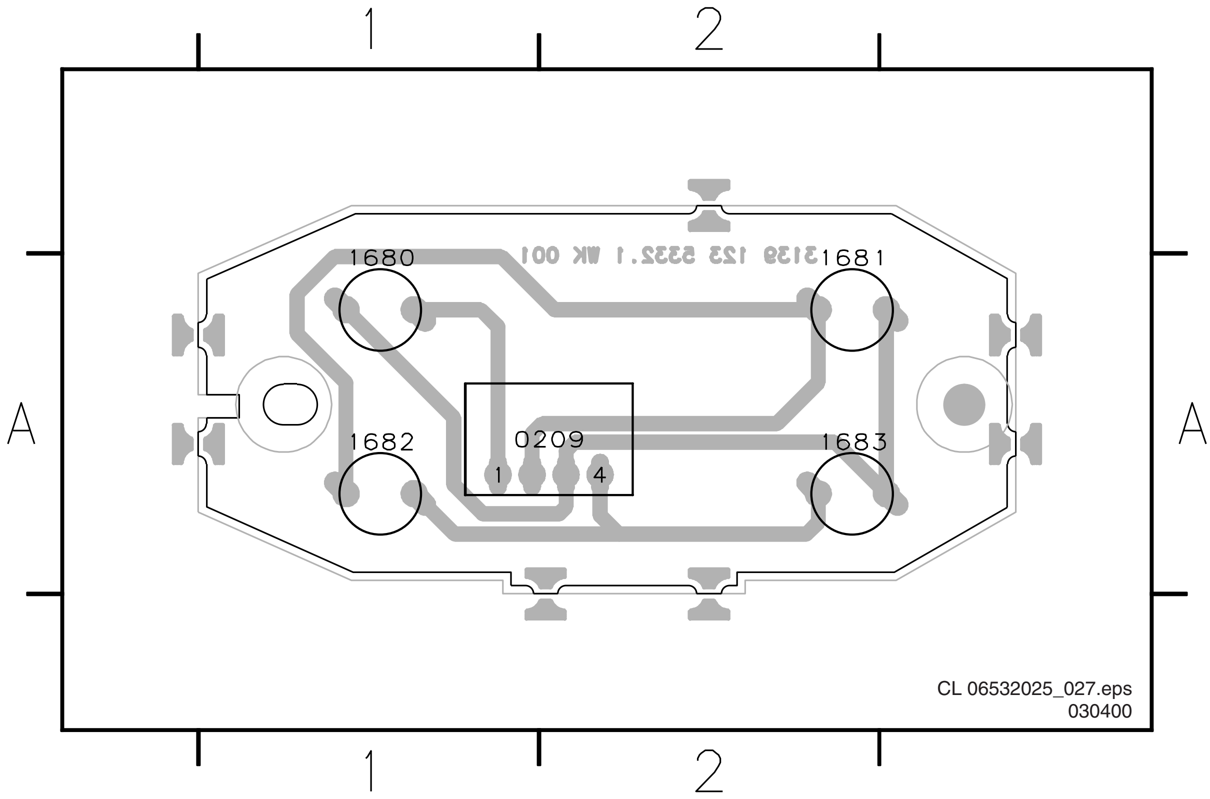
TOP control panel (RF)


1
2
3
4
A
B
T
TOP CONTROL PANEL (RF)
To 0256
of
A8
0209
4
3
2
1
KeyBd2
KeyBd1'
KeyBd3
C+
C-
V+
V-
1683
CH UP
1682
CH DN
1681
VOL UP
1680
VOL DN

CL 06532025_023.eps
150500

0209	B2
1680	B4
1681	B4
1682	B3
1683	B3

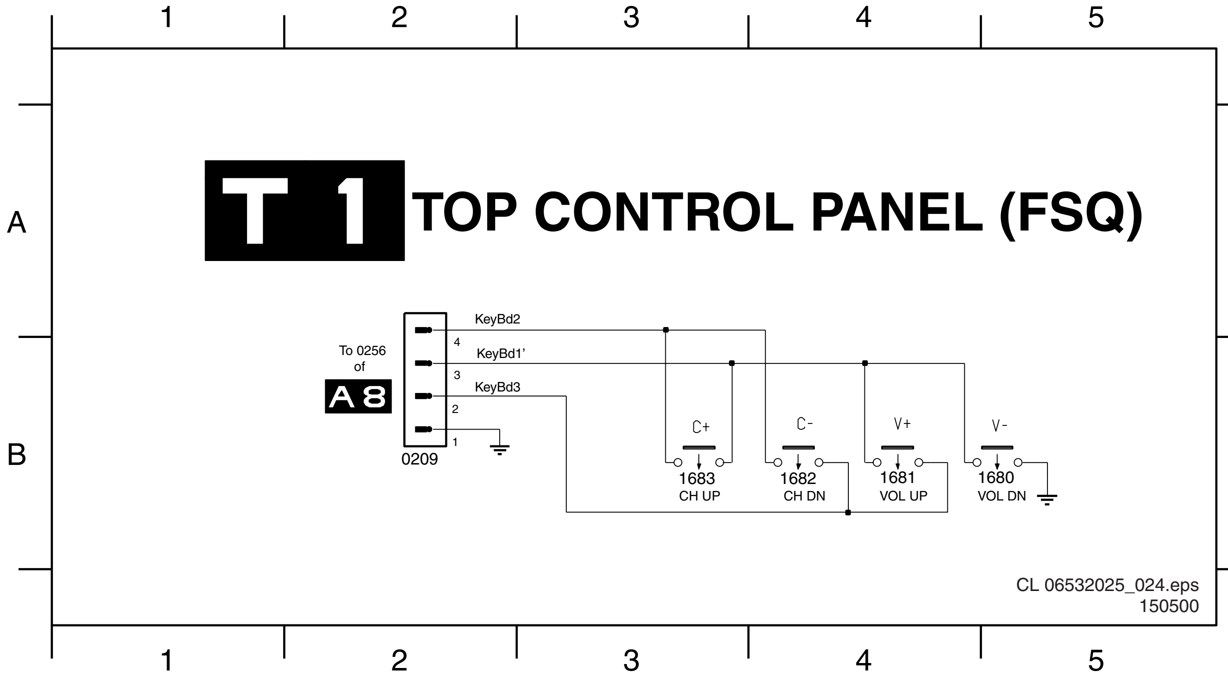
TOP control panel (RF)


1
2
A
1680
1681
1682
1683
0209
1
4
3139 123 5332.1 WK 001

CL 06532025_027.eps
030400

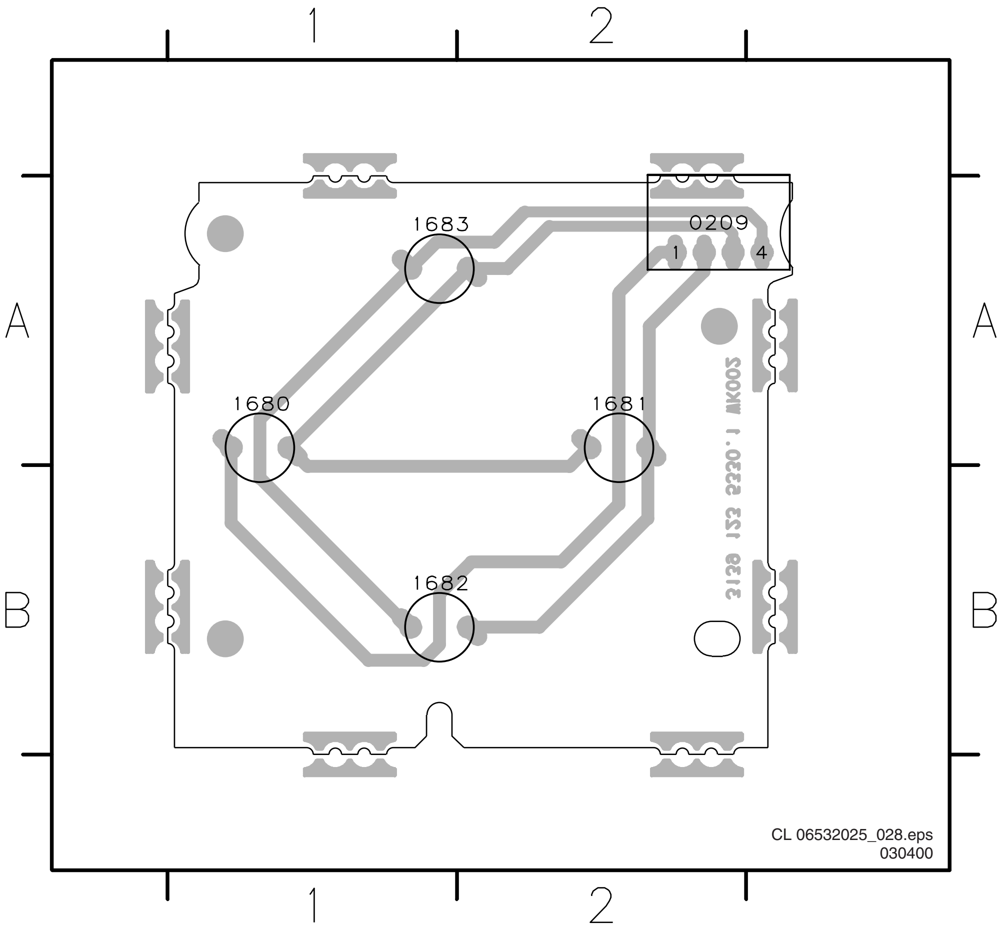
0209	A2
1680	A1
1681	A2
1682	A1
1683	A2

TOP control panel (FSQ)


T 1 TOP CONTROL PANEL (FSQ)
1
2
3
4
5
A
B
To 0256
of
A8
0209
KeyBd2
KeyBd1'
KeyBd3
4
3
2
1
C+
C-
V+
V-
1683
CH UP
1682
CH DN
1681
VOL UP
1680
VOL DN
CL 06532025_024.eps
150500

0209	B2
1680	B5
1681	B4
1682	B4
1683	B3

TOP control panel (FSQ)


1
2
A
B
1683
0209
1
4
1680
1681
1682
3139 153 5550.1 MK005
CL 06532025_028.eps
030400

0209	A2
1680	A1
1681	A2
1682	B1
1683	A1

Spare parts list

[E] Side AV Panel

Various

0021▲	3139 124 33221	Side AV Bracket
0232▲	4822 267 31014	Headphone Socket
0250	4822 265 11606	3P YKC21-5599
0253	4822 267 10735	Conn. 3P
0254	4822 267 10734	Conn. 5P
0255	4822 267 10565	Conn. 4P
0261	2422 025 12482	Conn. 6P

⊣⊢

2171	4822 126 13512	330pF 10% 50V
2172	4822 126 13512	330pF 10% 50V
2173	4822 126 13512	330pF 10% 50V
2174	4822 126 13512	330pF 10% 50V
2176	4822 126 13512	330pF 10% 50V
2177	4822 124 40207	100µF 20% 25V
2178	4822 126 13512	330pF 10% 50V
2179	4822 124 40207	100µF 20% 25V

─▭─

3150	4822 050 21003	10k 1% 0.6W
3151	4822 116 52303	8k2 5% 0.5W
3152	4822 050 21003	10k 1% 0.6W
3153	4822 116 52303	8k2 5% 0.5W
3155	4822 116 52201	75Ω 5% 0.5W
3156	4822 116 52219	330Ω 5% 0.5W
3157	4822 116 52219	330Ω 5% 0.5W

─▶|─

6161	4822 130 34278	BZX79-B6V8

[T] Top Control Panel (RF)

Various

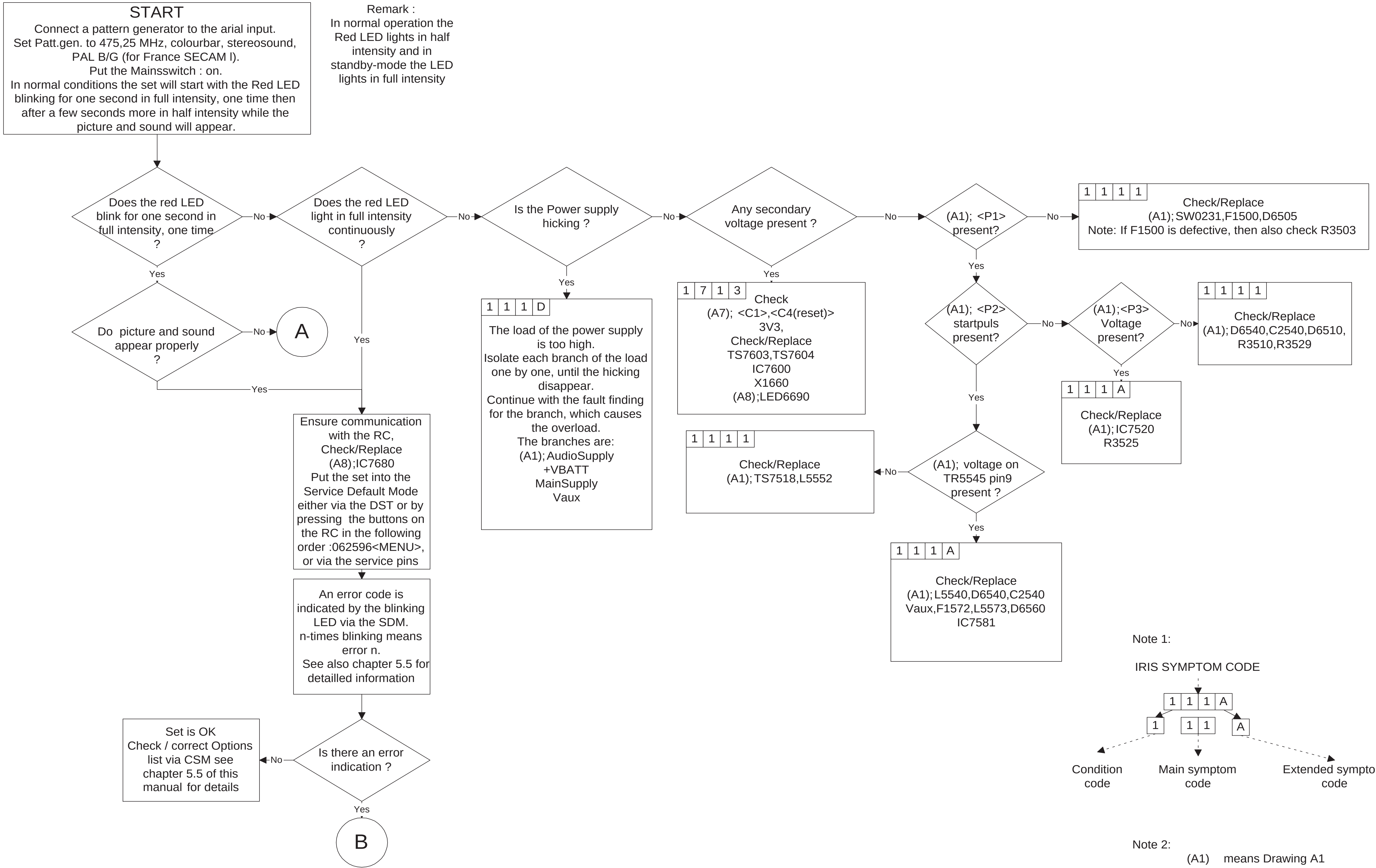
0011	3139 137 66921	Top Control Button
0013	3139 124 30381	Top Control Bracket
0158	3139 110 38741	Cable 4P 820mm
0209	4822 267 10567	Conn. 4P
1680	4822 276 13775	Switch
1681	4822 276 13775	Switch
1682	4822 276 13775	Switch
1683	4822 276 13775	Switch

[T1] Top Control Panel (FSQ)

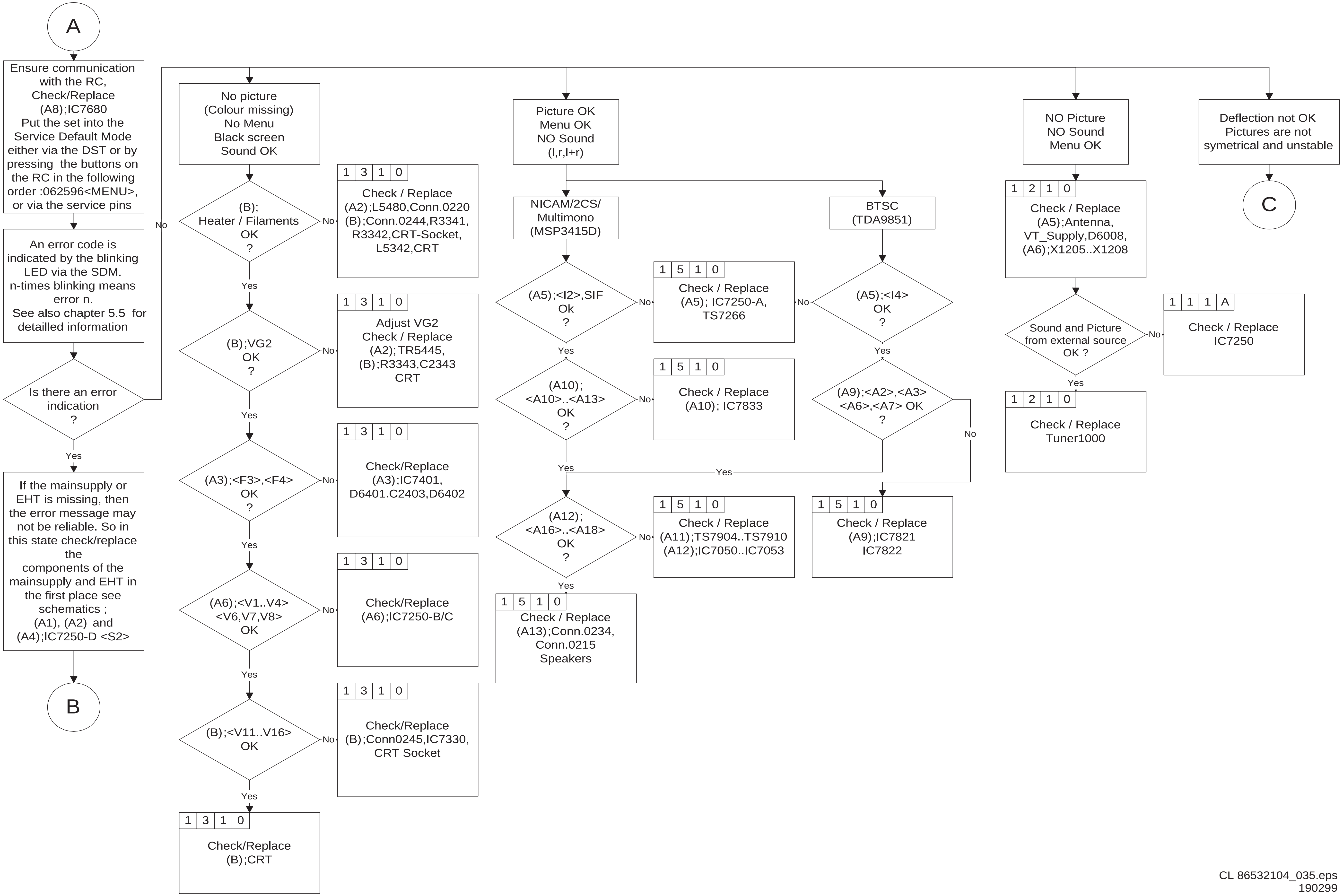
Various

0011	3139 137 76961	Top Control Assy
0158	3139 110 38741	Cable 4P 820mm
0209	4822 267 10567	Conn. 4P
0310	3139 124 26992	Top Control Bracket
1680	4822 276 13775	Switch
1681	4822 276 13775	Switch
1682	4822 276 13775	Switch
1683	4822 276 13775	Switch

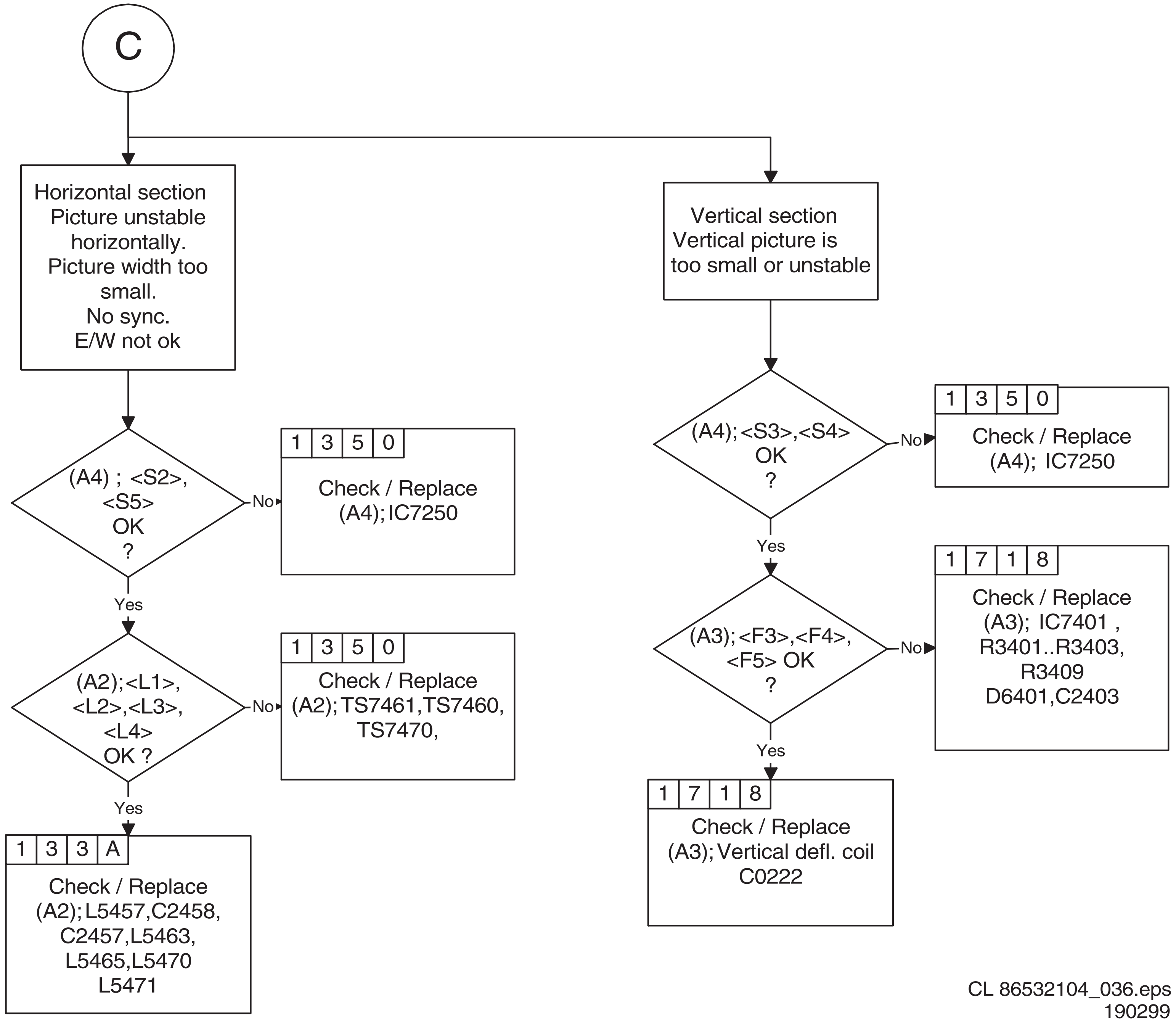
6 Fault finding trees, diagrams and overviews


START
Connect a pattern generator to the arial input.
Set Patt.gen. to 475,25 MHz, colourbar, stereosound, PAL B/G (for France SECAM l).
Put the Mainsswitch : on.
In normal conditions the set will start with the Red LED blinking for one second in full intensity, one time then after a few seconds more in half intensity while the picture and sound will appear.
Remark :
In normal operation the Red LED lights in half intensity and in standby-mode the LED lights in full intensity
Does the red LED blink for one second in full intensity, one time ?
No
Does the red LED light in full intensity continuously ?
No
Is the Power supply hicking ?
No
Any secondary voltage present ?
No
(A1); <P1> present?
No
1 1 1 1
Check/Replace
(A1);SW0231,F1500,D6505
Note: If F1500 is defective, then also check R3503
Yes
Do picture and sound appear properly ?
No
A
Yes
Yes
Yes
1 1 1 D
The load of the power supply is too high.
Isolate each branch of the load one by one, until the hicking disappear.
Continue with the fault finding for the branch, which causes the overload.
The branches are:
(A1);AudioSupply
+VBATT
MainSupply
Vaux
Yes
1 7 1 3
Check
(A7); <C1>,<C4(reset)>
3V3,
Check/Replace
TS7603,TS7604
IC7600
X1660
(A8);LED6690
Yes
(A1); <P2> startpuls present?
No
(A1);<P3> Voltage present?
No
1 1 1 1
Check/Replace
(A1);D6540,C2540,D6510,
R3510,R3529
Yes
1 1 1 A
Check/Replace
(A1);IC7520
R3525
Yes
(A1); voltage on TR5545 pin9 present ?
No
1 1 1 1
Check/Replace
(A1);TS7518,L5552
Yes
1 1 1 A
Check/Replace
(A1);L5540,D6540,C2540
Vaux,F1572,L5573,D6560
IC7581
Yes
Ensure communication with the RC,
Check/Replace
(A8);IC7680
Put the set into the Service Default Mode either via the DST or by pressing the buttons on the RC in the following order :062596<MENU>, or via the service pins
An error code is indicated by the blinking LED via the SDM.
n-times blinking means error n.
See also chapter 5.5 for detailled information
Is there an error indication ?
No
Set is OK
Check / correct Options list via CSM see chapter 5.5 of this manual for details
Yes
B
Note 1:
IRIS SYMPTOM CODE
1 1 1 A
1
1 1
A
Condition code
Main symptom code
Extended symptom code
Note 2:
(A1) means Drawing A1
<P1> means Test point P1

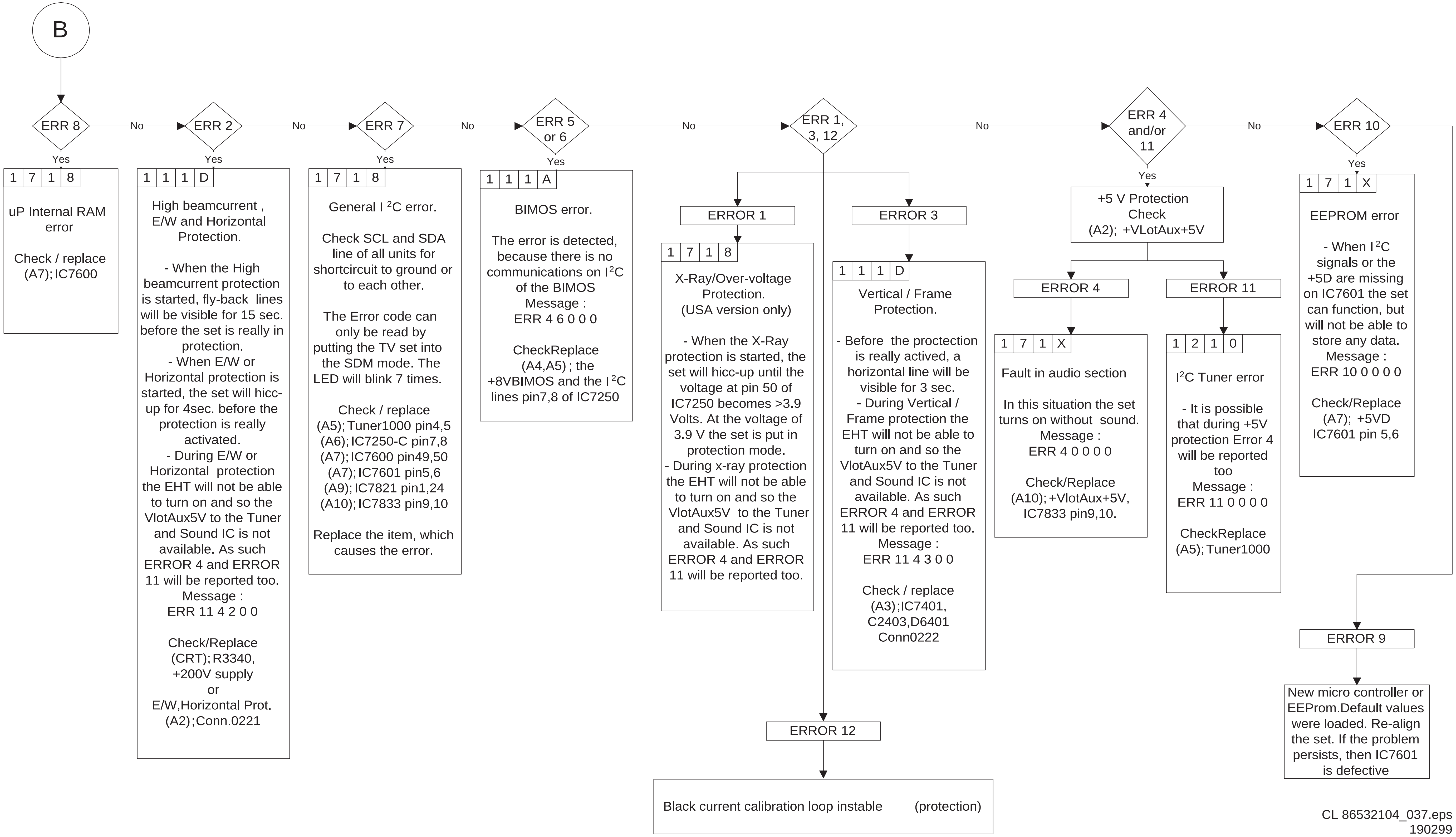
CL 86532104_034.eps
190299


A
Ensure communication with the RC, Check/Replace (A8);IC7680 Put the set into the Service Default Mode either via the DST or by pressing the buttons on the RC in the following order :062596<MENU>, or via the service pins
An error code is indicated by the blinking LED via the SDM. n-times blinking means error n. See also chapter 5.5 for detailled information
Is there an error indication ?
No
Yes
If the mainsupply or EHT is missing, then the error message may not be reliable. So in this state check/replace the components of the mainsupply and EHT in the first place see schematics ; (A1), (A2) and (A4);IC7250-D <S2>
B
No picture (Colour missing) No Menu Black screen Sound OK
(B); Heater / Filaments OK ?
No
1 3 1 0
Check / Replace (A2);L5480,Conn.0220 (B);Conn.0244,R3341, R3342,CRT-Socket, L5342,CRT
Yes
(B);VG2 OK ?
No
1 3 1 0
Adjust VG2 Check / Replace (A2);TR5445, (B);R3343,C2343 CRT
Yes
(A3);<F3>,<F4> OK ?
No
1 3 1 0
Check/Replace (A3);IC7401, D6401.C2403,D6402
Yes
(A6);<V1..V4> <V6,V7,V8> OK
No
1 3 1 0
Check/Replace (A6);IC7250-B/C
Yes
(B);<V11..V16> OK
No
1 3 1 0
Check/Replace (B);Conn0245,IC7330, CRT Socket
Yes
1 3 1 0
Check/Replace (B);CRT
Picture OK Menu OK NO Sound (l,r,l+r)
NICAM/2CS/ Multimono (MSP3415D)
(A5);<I2>,SIF Ok ?
No
1 5 1 0
Check / Replace (A5); IC7250-A, TS7266
Yes
(A10); <A10>..<A13> OK ?
No
1 5 1 0
Check / Replace (A10); IC7833
Yes
(A12); <A16>..<A18> OK ?
No
1 5 1 0
Check / Replace (A11);TS7904..TS7910 (A12);IC7050..IC7053
Yes
1 5 1 0
Check / Replace (A13);Conn.0234, Conn.0215 Speakers
BTSC (TDA9851)
No
(A5);<I4> OK ?
Yes
(A9);<A2>,<A3> <A6>,<A7> OK ?
No
Yes
1 5 1 0
Check / Replace (A9);IC7821 IC7822
NO Picture NO Sound Menu OK
1 2 1 0
Check / Replace (A5);Antenna, VT_Supply,D6008, (A6);X1205..X1208
Sound and Picture from external source OK ?
No
1 1 1 A
Check / Replace IC7250
Yes
1 2 1 0
Check / Replace Tuner1000
Deflection not OK Pictures are not symetrical and unstable
C

CL 86532104_035.eps
190299


C
Horizontal section
Picture unstable horizontally.
Picture width too small.
No sync.
E/W not ok
(A4) ; <S2>, <S5> OK ?
No
1 3 5 0
Check / Replace
(A4); IC7250
Yes
(A2); <L1>, <L2>, <L3>, <L4> OK ?
No
1 3 5 0
Check / Replace
(A2); TS7461, TS7460, TS7470,
Yes
1 3 3 A
Check / Replace
(A2); L5457, C2458, C2457, L5463, L5465, L5470 L5471
Vertical section
Vertical picture is too small or unstable
(A4); <S3>, <S4> OK ?
No
1 3 5 0
Check / Replace
(A4); IC7250
Yes
(A3); <F3>, <F4>, <F5> OK ?
No
1 7 1 8
Check / Replace
(A3); IC7401 , R3401..R3403, R3409 D6401, C2403
Yes
1 7 1 8
Check / Replace
(A3); Vertical defl. coil C0222

CL 86532104_036.eps
190299



uP Internal RAM error

Check / replace (A7); IC7600

High beamcurrent , E/W and Horizontal Protection.

- When the High beamcurrent protection is started, fly-back lines will be visible for 15 sec. before the set is really in protection.
- When E/W or Horizontal protection is started, the set will hicc-up for 4sec. before the protection is really activated.
- During E/W or Horizontal protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.

Message :
ERR 11 4 2 0 0

Check/Replace (CRT); R3340, +200V supply or E/W,Horizontal Prot. (A2); Conn.0221

General I ^{2}C error.

Check SCL and SDA line of all units for shortcircuit to ground or to each other.

The Error code can only be read by putting the TV set into the SDM mode. The LED will blink 7 times.

Check / replace
(A5); Tuner1000 pin4,5
(A6); IC7250-C pin7,8
(A7); IC7600 pin49,50
(A7); IC7601 pin5,6
(A9); IC7821 pin1,24
(A10); IC7833 pin9,10

Replace the item, which causes the error.

BIMOS error.

The error is detected, because there is no communications on I ^{2}C of the BIMOS

Message :
ERR 4 6 0 0 0

CheckReplace (A4,A5) ; the +8VBIMOS and the I ^{2}C lines pin7,8 of IC7250

X-Ray/Over-voltage Protection. (USA version only)

- When the X-Ray protection is started, the set will hicc-up until the voltage at pin 50 of IC7250 becomes >3.9 Volts. At the voltage of 3.9 V the set is put in protection mode.
- During x-ray protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.

Vertical / Frame Protection.

- Before the proctection is really actived, a horizontal line will be visible for 3 sec.
- During Vertical / Frame protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.

Message :
ERR 11 4 3 0 0

Check / replace (A3);IC7401, C2403,D6401 Conn0222

Black current calibration loop instable (protection)

+5 V Protection Check (A2); +VLotAux+5V

Fault in audio section

In this situation the set turns on without sound.

Message :
ERR 4 0 0 0 0

Check/Replace (A10); +VlotAux+5V, IC7833 pin9,10.

I ^{2}C Tuner error

- It is possible that during +5V protection Error 4 will be reported too

Message :
ERR 11 0 0 0 0

CheckReplace (A5); Tuner1000

EEPROM error

- When I ^{2}C signals or the +5D are missing on IC7601 the set can function, but will not be able to store any data.

Message :
ERR 10 0 0 0 0

Check/Replace (A7); +5VD IC7601 pin 5,6

New micro controller or EEProm.Default values were loaded. Re-align the set. If the problem persists, then IC7601 is defective

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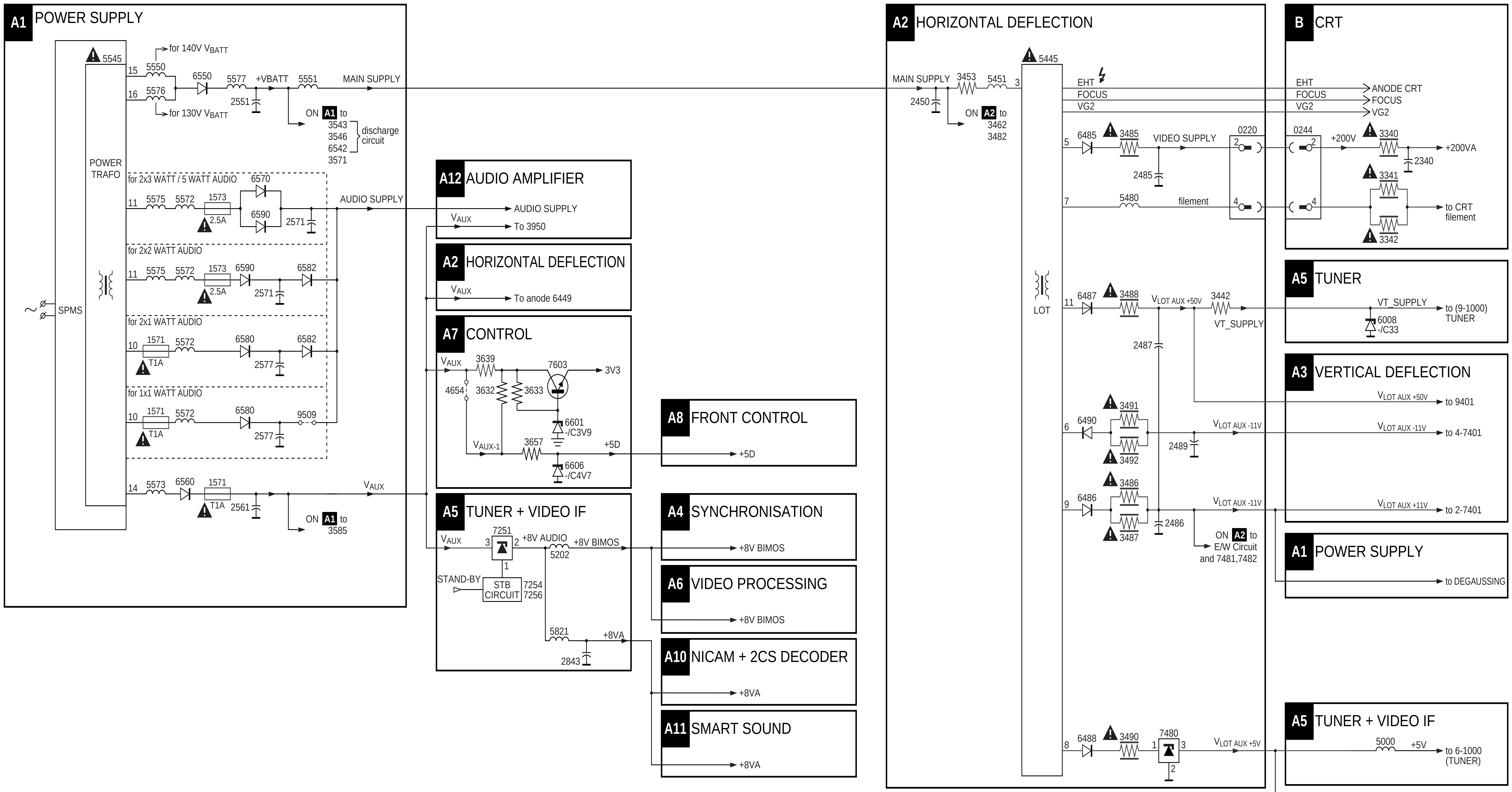
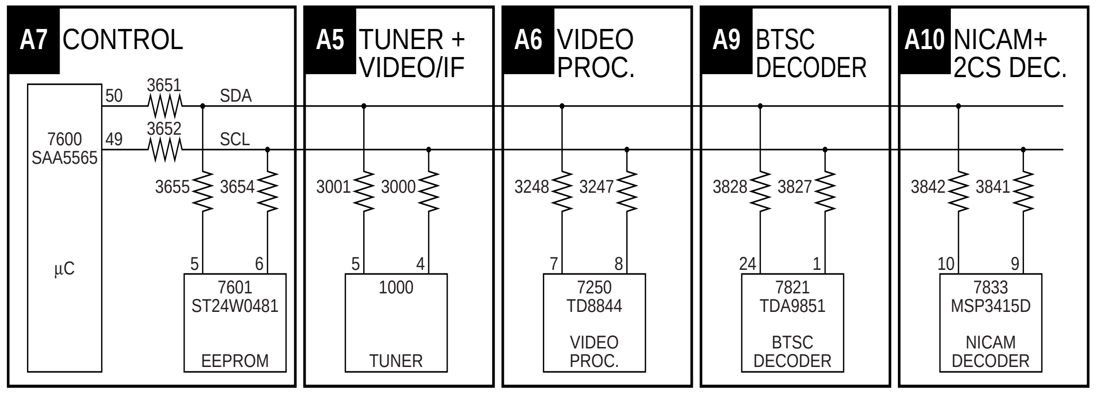
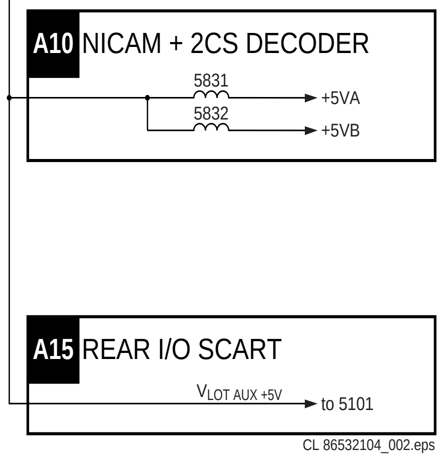
190299


A1 POWER SUPPLY
5545
15
16
5550
5576
for 140V VBATT
for 130V VBATT
6550
5577
+VBATT
5551
2551
MAIN SUPPLY
ON A1 to 3543 3546 6542 3571 discharge circuit
POWER TRAFO
SPMS
for 2x3 WATT / 5 WATT AUDIO
11
5575
5572
1573
2.5A
6570
6590
2571
AUDIO SUPPLY
for 2x2 WATT AUDIO
11
5575
5572
1573
6590
6582
2.5A
2571
for 2x1 WATT AUDIO
10
1571
5572
6580
6582
T1A
2577
for 1x1 WATT AUDIO
10
1571
5572
6580
9509
T1A
2577
14
5573
6560
1571
T1A
2561
VAUX
ON A1 to 3585
A12 AUDIO AMPLIFIER
AUDIO SUPPLY
VAUX
To 3950
A2 HORIZONTAL DEFLECTION
VAUX
To anode 6449
A7 CONTROL
VAUX
3639
7603
3V3
4654
3632
3633
6601 -/C3V9
VAUX-1
3657
+5D
6606 -/C4V7
A5 TUNER + VIDEO IF
VAUX
7251
3
2
1
+8V AUDIO
5202
+8V BIMOS
STAND-BY
STB CIRCUIT
7254
7256
5821
+8VA
2843
A8 FRONT CONTROL
+5D
A4 SYNCHRONISATION
+8V BIMOS
A6 VIDEO PROCESSING
+8V BIMOS
A10 NICAM + 2CS DECODER
+8VA
A11 SMART SOUND
+8VA
A2 HORIZONTAL DEFLECTION
MAIN SUPPLY
3453
5451
3
5445
2450
ON A2 to 3462 3482
EHT
FOCUS
VG2
5
6485
3485
VIDEO SUPPLY
0220
2
2485
7
5480
filement
4
LOT
11
6487
3488
VLOT AUX +50V
3442
VT_SUPPLY
2487
6
6490
3491
3492
VLOT AUX -11V
2489
9
6486
3486
3487
2486
VLOT AUX -11V
ON A2 to E/W Circuit and 7481,7482
8
6488
3490
7480
1
3
2
VLOT AUX +5V
B CRT
EHT
FOCUS
VG2
ANODE CRT
FOCUS
VG2
0244
2
+200V
3340
+200VA
2340
3341
4
to CRT filement
3342
A5 TUNER
VT_SUPPLY
6008 -/C33
to (9-1000) TUNER
A3 VERTICAL DEFLECTION
VLOT AUX +50V
to 9401
VLOT AUX -11V
to 4-7401
VLOT AUX +11V
to 2-7401
A1 POWER SUPPLY
to DEGAUSSING
A5 TUNER + VIDEO IF
5000
+5V
to 6-1000 (TUNER)

IIC BUS INTERCONNECTION DIAGRAM


A7 CONTROL
7600 SAA5565
µC
50
49
3651
3652
SDA
SCL
3655
3654
5
6
7601 ST24W0481
EEPROM
A5 TUNER + VIDEO/IF
3001
3000
5
4
1000
TUNER
A6 VIDEO PROC.
3248
3247
7
8
7250 TD8844
VIDEO PROC.
A9 BTSC DECODER
3828
3827
24
1
7821 TDA9851
BTSC DECODER
A10 NICAM+ 2CS DEC.
3842
3841
10
9
7833 MSP3415D
NICAM DECODER


A10 NICAM + 2CS DECODER
5831
+5VA
5832
+5VB
A15 REAR I/O SCART
VLOT AUX +5V
to 5101

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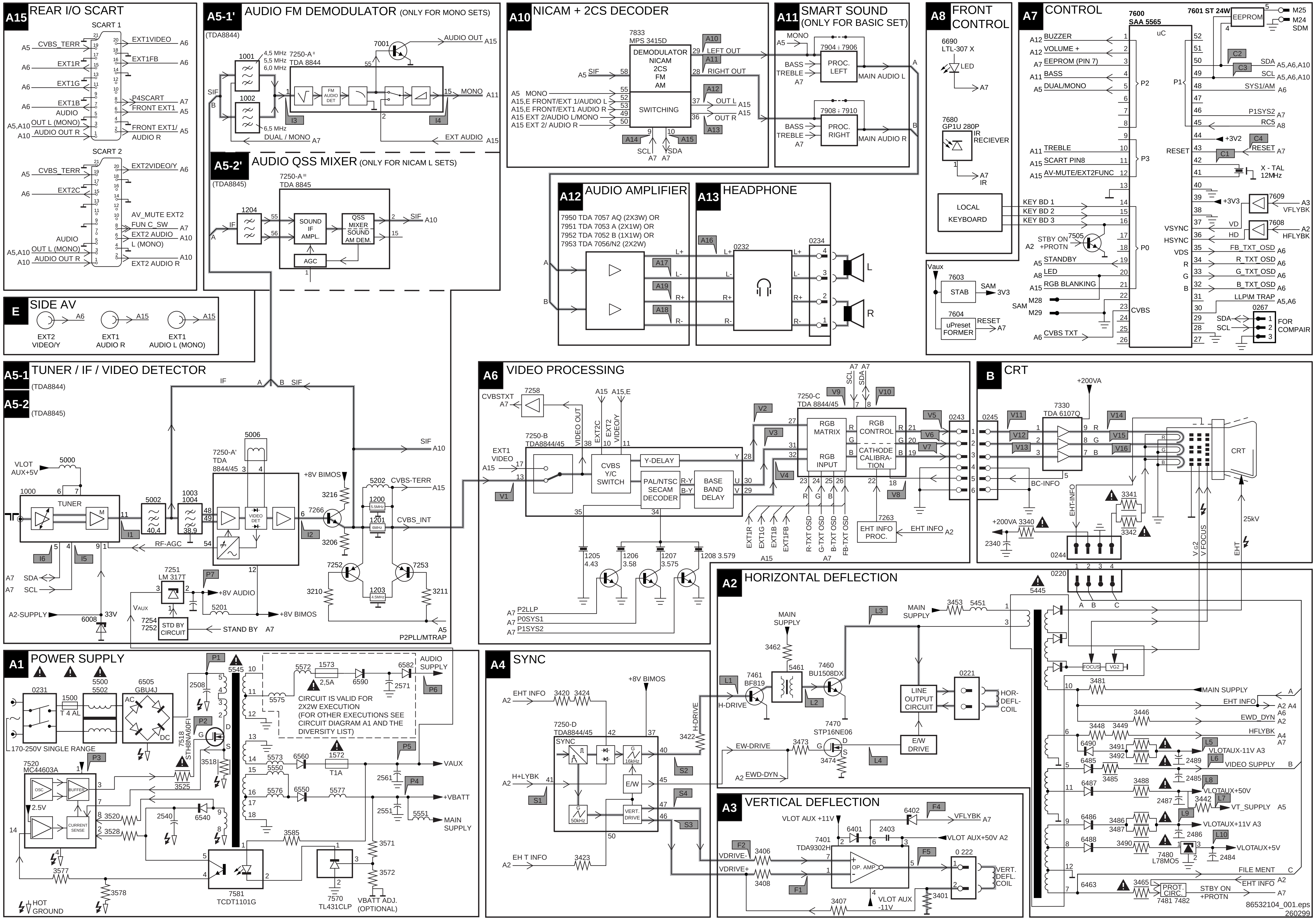
260299


A15 REAR I/O SCART
SCART 1
CVBS_TERR
EXT1R
EXT1G
EXT1B
AUDIO
OUT L (MONO)
AUDIO OUT R
EXT1VIDEO
EXT1FB
P4SCART
FRONT EXT1
FRONT EXT1/ AUDIO R
SCART 2
EXT2C
EXT2VIDEO/Y
AV_MUTE EXT2
FUN C_SW
EXT2 AUDIO L (MONO)
EXT2 AUDIO R
A5-1' AUDIO FM DEMODULATOR (ONLY FOR MONO SETS)
(TDA8844)
7250-A II TDA 8844
4,5 MHz
5,5 MHz
6,0 MHz
6,5 MHz
FM AUDIO DET
AUDIO OUT
MONO
DUAL / MONO
EXT AUDIO
A5-2' AUDIO QSS MIXER (ONLY FOR NICAM L SETS)
(TDA8845)
7250-A III TDA 8845
SOUND IF AMPL.
QSS MIXER SOUND AM DEM.
AGC
SIF
IF
A10 NICAM + 2CS DECODER
7833 MPS 3415D
DEMODULATOR NICAM 2CS FM AM
SWITCHING
LEFT OUT
RIGHT OUT
OUT L
OUT R
A5 MONO
A15,E FRONT/EXT 1/AUDIO L
A15,E FRONT/EXT1 AUDIO R
A15 EXT 2/AUDIO L/MONO
A15 EXT 2/ AUDIO R
SCL
SDA
A11 SMART SOUND (ONLY FOR BASIC SET)
7904 : 7906
PROC. LEFT
7908 : 7910
PROC. RIGHT
BASS
TREBLE
MAIN AUDIO L
MAIN AUDIO R
A8 FRONT CONTROL
6690 LTL-307 X
LED
7680 GP1U 280P
IR RECIEVER
LOCAL KEYBOARD
7603 STAB
SAM 3V3
7604 uPreset FORMER
RESET
A7 CONTROL
7600 SAA 5565
7601 ST 24W
EEPROM
BUZZER
VOLUME +
EEPROM (PIN 7)
BASS
DUAL/MONO
TREBLE
SCART PIN8
AV-MUTE/EXT2FUNC
KEY BD 1
KEY BD 2
KEY BD 3
STBY ON +PROTN
STANDBY
LED
RGB BLANKING
CVBS TXT
SDA
SCL
SYS1/AM
P1SYS2
RC5
RESET
X - TAL 12MHz
VSYNC
HSYNC
VDS
FB_TXT_OSD
R_TXT_OSD
G_TXT_OSD
B_TXT_OSD
LLP\M TRAP
VFLYBK
HFLYBK
FOR COMPAIR
M25
M24
SDM
E SIDE AV
EXT2 VIDEO/Y
EXT1 AUDIO R
EXT1 AUDIO L (MONO)
A12 AUDIO AMPLIFIER
7950 TDA 7057 AQ (2X3W) OR
7951 TDA 7053 A (2X1W) OR
7952 TDA 7052 B (1X1W) OR
7953 TDA 7056/N2 (2X2W)
A13 HEADPHONE
A5-1 TUNER / IF / VIDEO DETECTOR
(TDA8844)
A5-2 (TDA8845)
VLOT AUX+5V
TUNER
RF-AGC
7250-A' TDA 8844/45
VIDEO DET
+8V BIMOS
CVBS-TERR
CVBS_INT
7251 LM 317T
+8V AUDIO
STD BY CIRCUIT
STAND BY
A2-SUPPLY
P2PLL/MTRAP
A6 VIDEO PROCESSING
CVBSTXT
7250-B TDA8844/45
EXT1 VIDEO
CVBS Y/C SWITCH
Y-DELAY
PAL/NTSC SECAM DECODER
BASE BAND DELAY
7250-C TDA 8844/45
RGB MATRIX
RGB INPUT
RGB CONTROL
CATHODE CALIBRA-TION
EHT INFO PROC.
EHT INFO
P2LLP
P0SYS1
P1SYS2
B CRT
7330 TDA 6107Q
BC-INFO
FOCUS
VG2
25kV
EHT
A1 POWER SUPPLY
0231
1500 T 4 AL
5500 5502
6505 GBU4J
170-250V SINGLE RANGE
7518 STH8NA60FI
7520 MC44603A
OSC
BUFFER
CURRENT SENSE
CIRCUIT IS VALID FOR 2X2W EXECUTION (FOR OTHER EXECUTIONS SEE CIRCUIT DIAGRAM A1 AND THE DIVERSITY LIST)
AUDIO SUPPLY
VAUX
+VBATT
MAIN SUPPLY
7581 TCDT1101G
7570 TL431CLP
VBATT ADJ. (OPTIONAL)
HOT GROUND
A4 SYNC
7250-D TDA8844/45
SYNC
EHT INFO
H+LYBK
EH T INFO
A2 HORIZONTAL DEFLECTION
MAIN SUPPLY
7461 BF819
7460 BU1508DX
7470 STP16NE06
H-DRIVE
EW-DRIVE
EWD-DYN
LINE OUTPUT CIRCUIT
E/W DRIVE
HOR-DEFL-COIL
EWD_DYN
HFLYBK
VLOTAUX-11V
VIDEO SUPPLY
VLOTAUX+50V
VT_SUPPLY
VLOTAUX+11V
7480 L78MO5
VLOTAUX+5V
FILE MENT
PROT. CIRC.
7481 7482
STBY ON +PROTN
A3 VERTICAL DEFLECTION
VLOT AUX +11V
VFLYBK
VLOT AUX+50V
7401 TDA9302H
OP. AMP
VDRIVE-
VDRIVE+
VERT. DEFL. COIL
VLOT AUX -11V
86532104_001.eps
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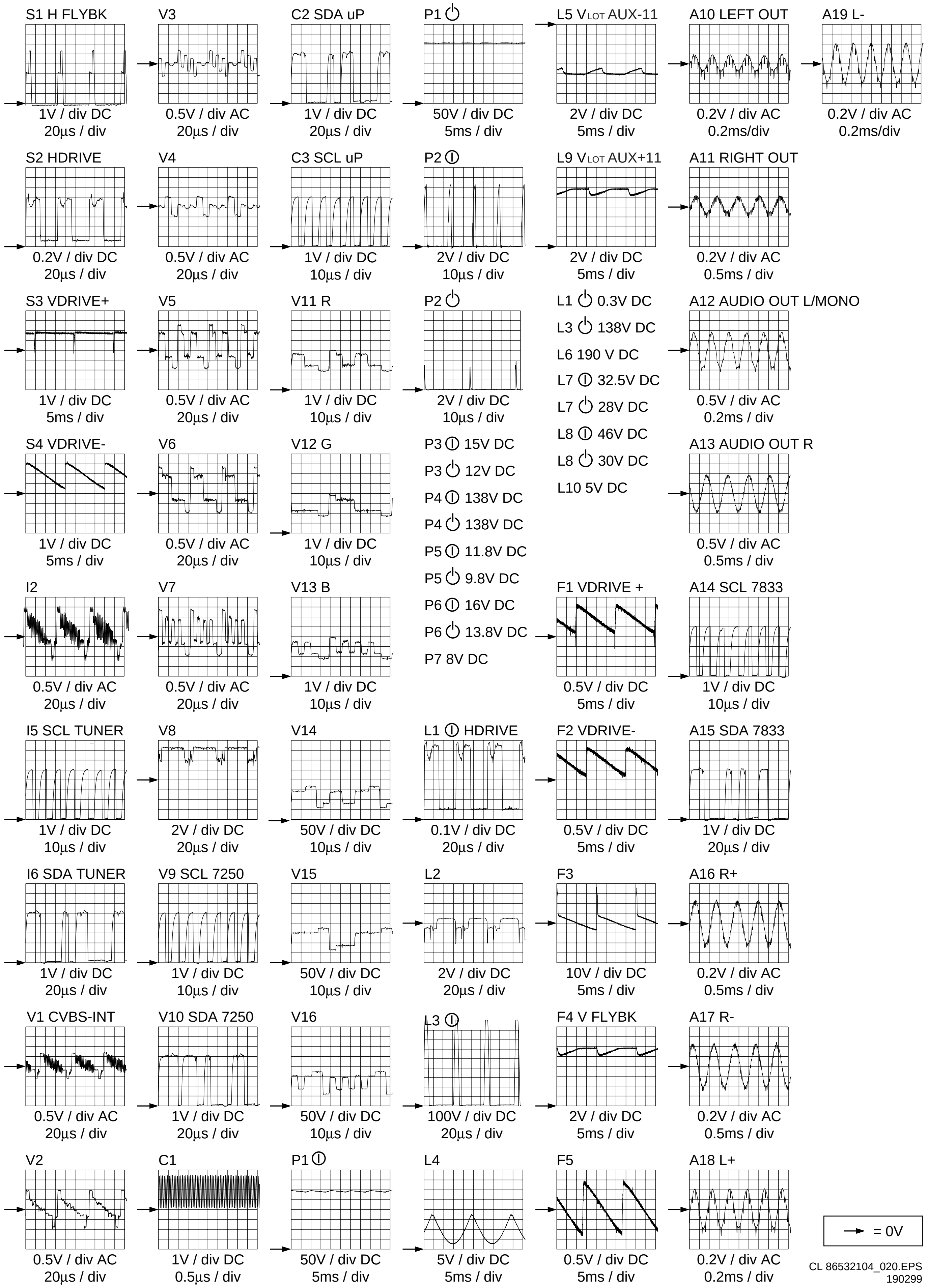
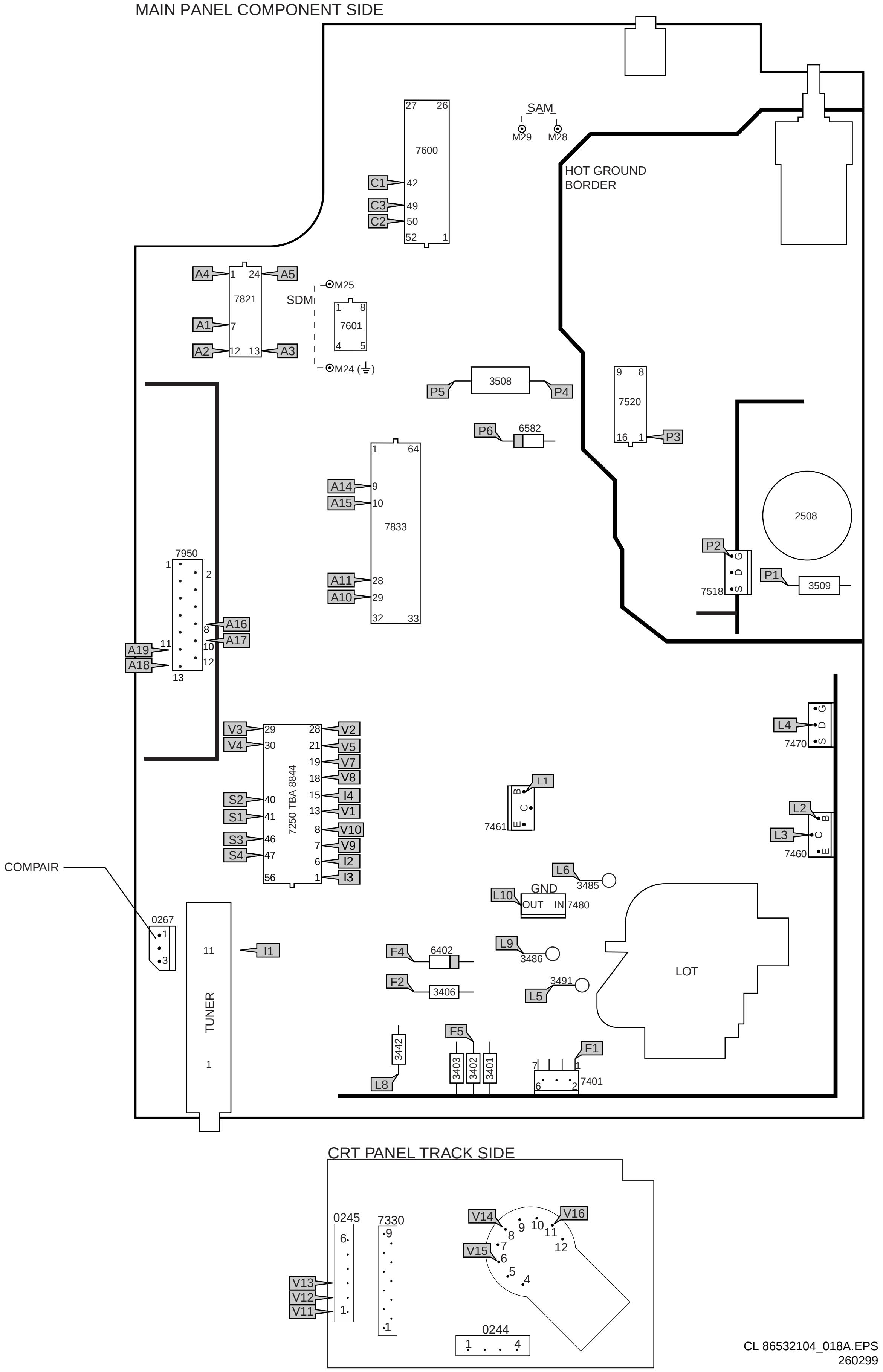
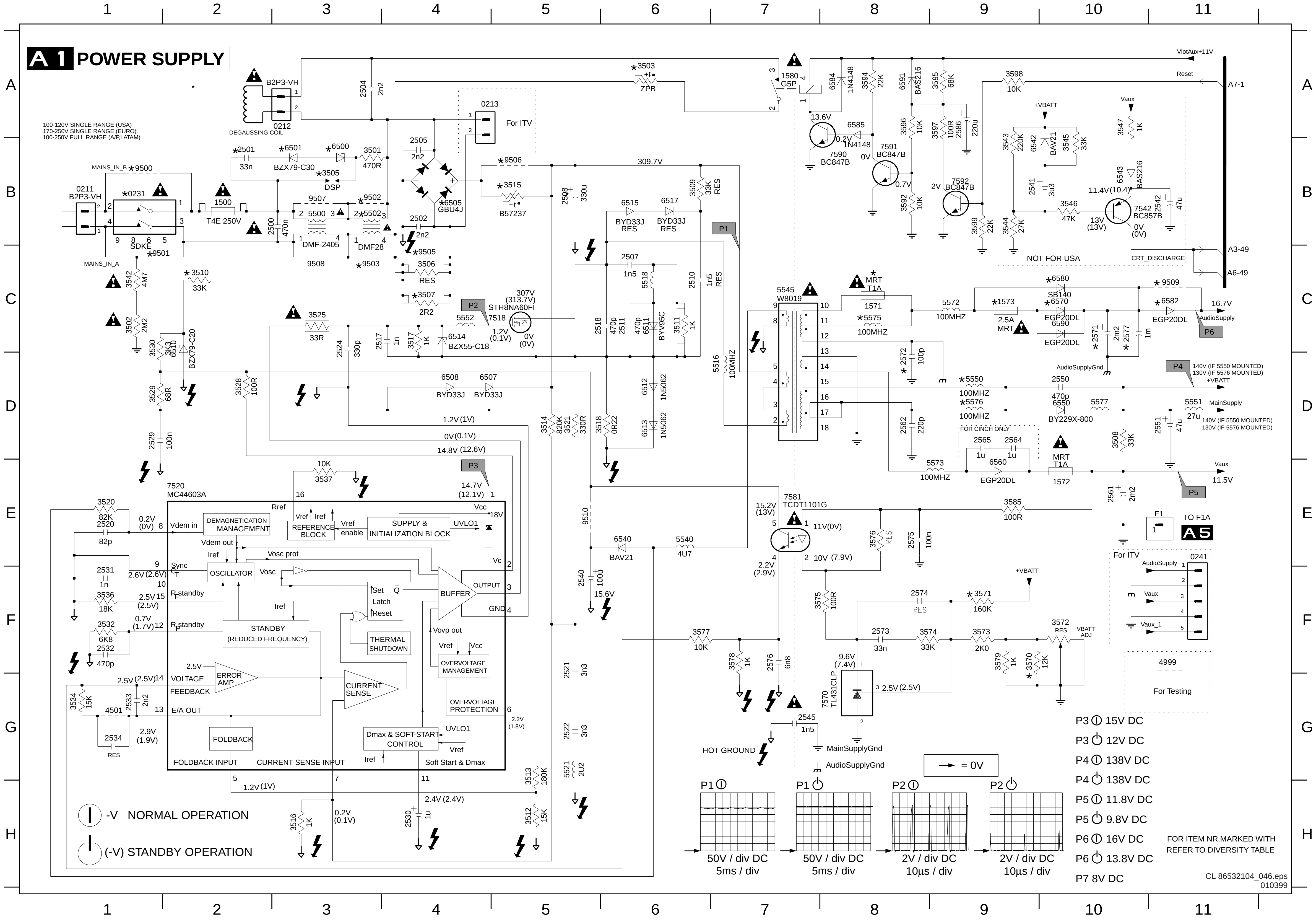


CL 86532104_020.EPS
190299


MAIN PANEL COMPONENT SIDE
SAM
M29
M28
HOT GROUND BORDER
7600
C1
C3
C2
7821
A4
A5
A1
A2
A3
SDM
M25
M24
7601
3508
P5
P4
7520
P3
P6
6582
7833
A14
A15
A11
A10
2508
P2
7518
P1
3509
7950
A16
A17
A19
A18
7250 TBA 8844
V3
V4
S2
S1
S3
S4
V2
V5
V7
V8
I4
V1
V10
V9
I2
I3
L4
7470
L1
7461
L2
L3
7460
COMPAIR
0267
L6
3485
GND
L10
OUT IN 7480
TUNER
I1
F4
6402
L9
3486
F2
3406
3491
L5
LOT
3442
F5
3403
3402
3401
F1
7401
L8
CRT PANEL TRACK SIDE
0245
7330
V14
V16
V15
V13
V12
V11
0244

CL 86532104_018A.EPS
260299


A1 POWER SUPPLY
100-120V SINGLE RANGE (USA)
170-250V SINGLE RANGE (EURO)
100-250V FULL RANGE (AP,LATAM)
DEGAUSSING COIL
B2P3-VH
0212
0211
0213
For ITV
MAINS_IN_B
MAINS_IN_A
SDKE
1500 T4E 250V
DMF-2405
DMF28
DSP
GBU4J
B57237
ZPB
1580 G5P
STH8NA60FI
7518
BZX55-C18
BZX79-C20
BZX79-C30
BYD33J
BYV95C
1N5062
7520 MC44603A
DEMAGNETICATION MANAGEMENT
REFERENCE BLOCK
SUPPLY & INITIALIZATION BLOCK
OSCILLATOR
STANDBY (REDUCED FREQUENCY)
THERMAL SHUTDOWN
OVERVOLTAGE MANAGEMENT
OVERVOLTAGE PROTECTION
ERROR AMP
CURRENT SENSE
FOLDBACK
Dmax & SOFT-START CONTROL
BUFFER
OUTPUT
Latch
FOLDBACK INPUT
CURRENT SENSE INPUT
Soft Start & Dmax
VOLTAGE FEEDBACK
E/A OUT
5545 W8019
7581 TCDT1101G
7570 TL431CLP
7590 BC847B
7591 BC847B
7592 BC847B
7542 BC857B
NOT FOR USA
CRT_DISCHARGE
FOR CINCH ONLY
VlotAux+11V
Reset
A7-1
A3-49
A6-49
AudioSupply
MainSupply
Vaux
+VBATT
140V (IF 5550 MOUNTED)
130V (IF 5576 MOUNTED)
TO F1A
A5
For ITV
0241
4999
For Testing
HOT GROUND
MainSupplyGnd
AudioSupplyGnd
= 0V
-V NORMAL OPERATION
(-V) STANDBY OPERATION
P3 15V DC
P3 12V DC
P4 138V DC
P4 138V DC
P5 11.8V DC
P5 9.8V DC
P6 16V DC
P6 13.8V DC
P7 8V DC
50V / div DC 5ms / div
50V / div DC 5ms / div
2V / div DC 10µs / div
2V / div DC 10µs / div
FOR ITEM NR.MARKED WITH
REFER TO DIVERSITY TABLE
CL 86532104_046.eps
010399

F1	E11
0211	B1
0212	A3
0213	A4
0231	B1
0241	E11
1500	B2
1571	C8
1572	E10
1573	C9
1580	A7
2500	B3
2501	B2
2502	B4
2504	A3
2505	A4
2507	C6
2508	B5
2510	C6
2511	C6
2517	C3
2518	C5
2520	E1
2521	F5
2522	G5
2524	C3
2529	D1
2530	H4
2531	F1
2532	F1
2533	G1
2534	G1
2540	F5
2541	B9
2542	B11
2545	G7
2550	D10
2551	D11
2561	E10
2562	D8
2564	D9
2565	D9
2571	C10
2572	D8
2573	F8
2574	F8
2575	E8
2576	F7
2577	C10
2586	A9
3501	B3
3502	C1
3503	A6
3505	B3
3506	C4
3507	C4
3508	D10
3509	B6
3510	C2
3511	C6
3512	H5
3513	G5
3514	D5
3515	B5
3516	H3
3517	C4
3518	D6
3520	E1
3521	D5
3525	C3
3528	D2
3529	D1
3530	C1
3532	F1
3534	G1
3536	F1
3537	E3
3542	C1
3543	B9
3544	B9
3545	B10
3546	B10
3547	A10
3570	F9
3571	F9
3572	F10
3573	F9
3574	F8
3575	F8
3576	E8
3577	F6
3578	F7
3579	F9
3585	E9
3592	B8
3594	A8
3595	A9
3596	A8
3597	A9
3598	A9
3599	B9
4501	G1
4999	F11
5500	B3
5502	B3
5516	D7
5518	C6
5521	G5
5540	E6
5545	C7
5550	D9
5551	D11
5552	C4
5572	C9
5573	E9
5575	C8
5576	D9
5577	D10
6500	B3
6501	B3
6505	B4
6507	D4
6508	D4
6510	C2
6511	C6
6512	D6
6513	D6
6514	C4
6515	B6
6517	B6
6540	E6
6542	B9
6543	B10
6550	D10
6560	D9
6570	C10
6580	C10
6582	C11
6584	A8
6585	A8
6590	C10
6591	A8
7518	C4
7520	E2
7542	B10
7570	G8
7581	E7
7590	B8
7591	B8
7592	B9
9500	B1
9501	C1
9502	B3
9503	C3
9505	C4
9506	B5
9507	B3
9508	C3
9509	C11
9510	E5

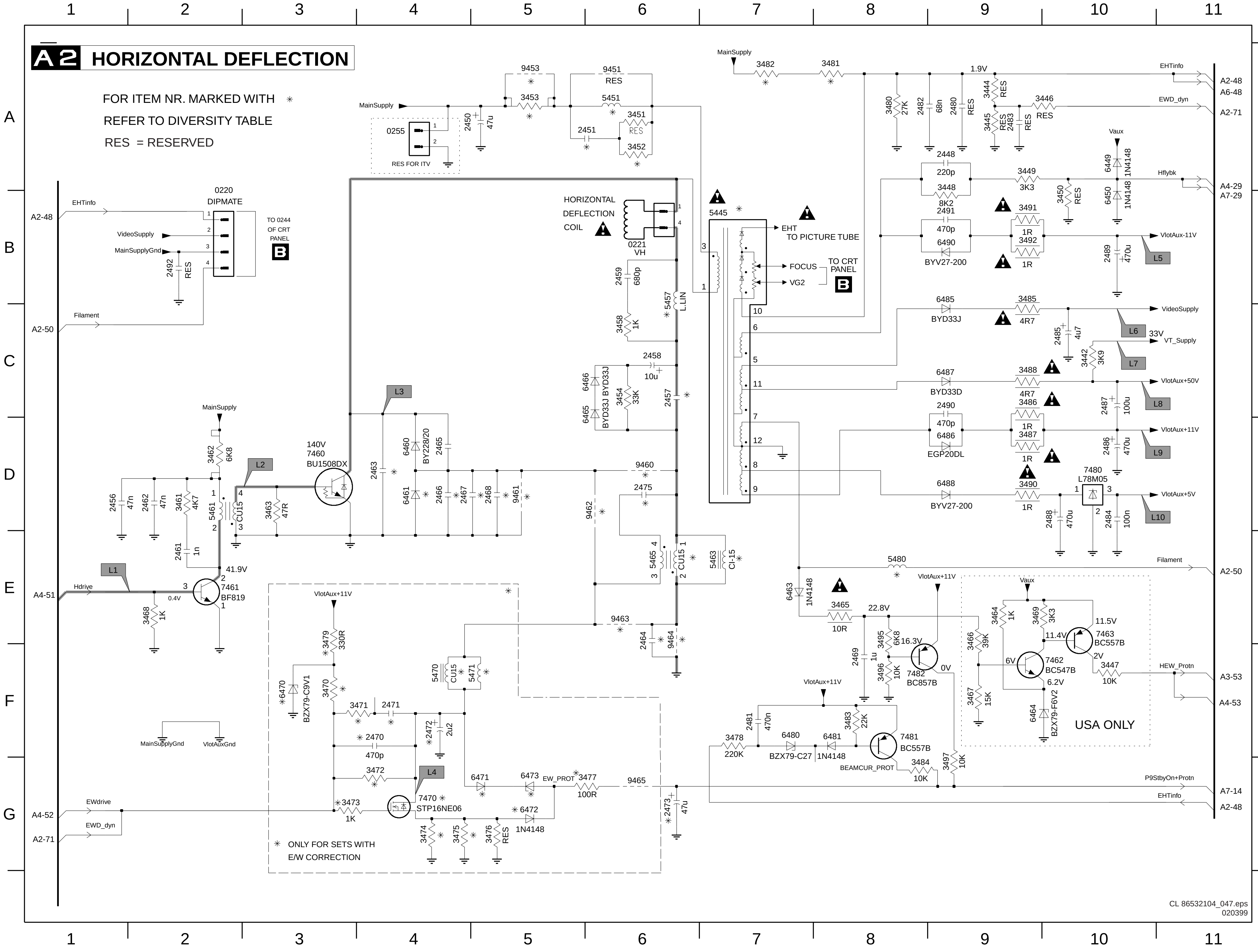
DIVERSITY TABLE FOR POWER SUPPLY

DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH*																	
ITEM	FR_CIS 25I/29I AP	LR USA	FR_NONCIS AP	HR 25I/29I EUROPE	HR_CIS 25I/29I AP	PS_FR_US	PS_FR_LA	HR 25I/29I CHINA	PS_FR NONCIS IND	ITV	140V VBATT	130V VBATT	2X3w/5w AUDIO	2X1w AUDIO	1X1w AUDIO	2X2w AUDIO	INDIA SVBW006ER
0231	YES	---	YES	YES	YES	---	YES	YES	---	YES	---	---	---	---	---	---	---
1571	---	---	---	---	---	---	---	---	---	---	---	---	---	T1.0A	T1.0A	---	---
1573	---	---	---	---	---	---	---	---	---	---	---	---	T2.5A	---	---	T2.5A	T2.5A
2501	---	---	YES	---	---	---	YES	---	YES	---	---	---	---	---	---	---	---
2508	330/400V	470/200V	330/400V	220/400V	220/400V	330/400V	330/400V	220/450V	330/450V	220/400V	---	---	---	---	---	---	---
2561	3300u	1000u	3300u	3300u	3300u	1000u	3300u	3300u	3300u	---	---	---	---	---	---	---	---
2571	---	---	---	---	---	---	---	---	---	---	---	---	2200/25V	---	---	2200/25V	2200/25V
2572	---	330p	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2577	---	---	---	---	---	---	---	---	---	---	---	---	---	1000/16V	1000/16V	---	---
3503	220V/9R	110V/10R	220V/9R	220V/9R	220V/9R	220V/9R	220V/9R	220V/9R	---	220V/9R	---	---	---	---	---	---	---
3505	YES	YES	---	YES	YES	YES	---	YES	---	---	---	---	---	---	---	---	---
3507	---	---	---	2R2/5w	2R2/5w	---	---	2R2/5w	---	2R2/5w	---	---	---	---	---	---	---
3510	33K/3w	33K/3w	33K/3w	68K/3w	68K/3w	33K/3w	33K/3w	68K/3w	33K/3w	---	---	---	---	---	---	---	---
3515	NTC 2R5	NTC 2R5	NTC 2R5	---	---	NTC 2R5	NTC 2R5	---	NTC 2R5	---	---	---	---	---	---	---	---
3570	---	---	---	---	---	---	---	---	---	---	10K	15K	---	---	---	---	---
3571	---	---	---	---	---	---	---	---	---	---	160K	150K	---	---	---	---	---
5502	DMF2810	---	---	DMF2820	DMF2820	---	---	DMF2820	---	---	---	---	---	---	---	---	---
5550	---	---	---	---	---	---	---	---	---	---	YES	---	---	---	---	---	---
5575	---	---	---	---	---	---	---	---	---	---	---	---	YES	---	---	YES	YES
5576	---	---	---	---	---	---	---	---	---	---	---	YES	---	---	---	---	---
6500	---	---	BZX79-C30	---	---	---	BZX79-C30	---	BZX79-C30	---	---	---	---	---	---	---	---
6501	---	---	BZX79-C30	---	---	---	BZX79-C30	---	BZX79-C30	---	---	---	---	---	---	---	---
6505	GBU6JL	GBU6JL	GBU6JL	GBU4JL	GBU4JL	GBU6JL	GBU6JL	GBU4JL	GBU6JL	---	---	---	---	---	---	---	---
6570	---	---	---	---	---	---	---	---	---	---	---	---	EGP20D	---	---	---	---
6580	---	---	---	---	---	---	---	---	---	---	---	---	---	SB140	BYV27-200	---	EGP20D
6582	---	---	---	---	---	---	---	---	---	---	---	---	EGP20D	---	---	EGP20	EGP20
6590	---	---	---	---	---	---	---	---	---	---	---	---	EGP20D	---	---	EGP20D	EGP20D
9500	---	YES	---	---	---	YES	---	---	---	---	---	---	---	---	---	---	---
9501	---	YES	---	---	---	YES	---	---	---	---	---	---	---	---	---	---	---
9502	---	YES	YES	---	---	YES	YES	---	YES	---	---	---	---	---	---	---	---
9503	---	YES	YES	---	---	YES	YES	---	YES	---	---	---	---	---	---	---	---
9505	YES	YES	YES	---	---	YES	YES	---	YES	---	---	---	---	---	---	---	---
9506	---	---	---	YES	YES	---	---	YES	---	YES	---	---	---	---	---	---	---
9509	---	---	---	---	---	---	---	---	---	---	---	---	---	YES	YES	---	---

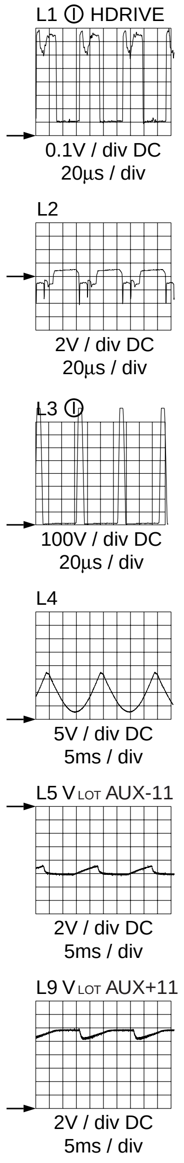
DIVERSITY TABLE FOR HORIZONTAL DEFLECTION

DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH *						
ITEM	PHILIPS TUBE 25"/28" BLD EAST-WEST	HUA FEI TUBE 25" EAST-WEST	PHILIPS TUBE 25"/28" BLS EAST-WEST	PHILIPS TUBE 25V (26") NO EAST-WEST	PHILIPS TUBE 27V (29") NO EAST-WEST	PHILIPS TUBE 27V (29") EAST-WEST
2451	15n	15n	15n	15n	15n	15n/ 12n China
2457	390n	390n	390n	390n	390n	360n
2463	1n	1n	820p	470p	680p	820p/1n China
2464	---	---	---	---	---	2u2
2465	9n1	9n1	9n1	10n	10n	10n
2466	10n	10n	10n	---	---	---
2467	---	---	---	---	---	22n
2468	18n	18n	18n	---	---	33n
2470	470p	470p	470p	---	---	470p
2471	470n	470n	470n	---	---	---
2472	2u2	2u2	2u2	---	---	2u2
2473	47u	47u	47u	---	---	47u
2475	560n	560n	510n	---	---	---
425 (A4)	56k	56k	56k	150k	120k	150k
3452	33R	33R	33R	22R	22R	22R
3453	---	---	---	4R7	4R7	---
3470	33k	33k	33k	---	---	33k
3471	220k	220k	220k	---	---	---
3472	100k	100k	120k	---	---	82k
3473	1k	1k	1k	---	---	1k
3474	3R3	3R3	3R3	---	---	4R7
3475	3R3	3R3	3R3	---	---	4R7
3477	100R	100R	100R	---	---	100R
3479	330R	330R	330R	---	---	330R
3481/82	Refer to	part list	videocontrol	Depends on	country.	
5445	242253102325	312813820681	242253102324	242253102326	242253102326	242253102326
				USA:242253102327	China:312813820691	
5451	33uH	33uH	33uH	27uH	27uH	27uH
5457	312813853111	312813853111	312813853111	312813853241	312813853241	312813853241
5463	---	---	---	---	---	312813834021
5465	312813834011	312813834011	312813834011	---	---	---
5470	311233830531	311233830531	311233830531	---	---	---
5471	---	---	---	---	---	1mH
5480	33uH	56uH	33uH	27uH	27uH	27uH/47uH China
6461	BYW95C/20	BYW95C/20	BYW95C/20	---	---	BYW95C/20
6470	BZX79-C9V1	BZX79-C9V1	BZX79-C9V1	---	---	BZX79-C9V1
6471	1N4148	1N4148	1N4148	---	---	---
6472	1N4148	1N4148	1N4148	---	---	1N4148
6473	BZX79-C39	BZX79-C39	BZX79-C39	---	---	---
7470	STP16NE	STP16NE	STP16NE	---	---	STP16NE
9453	YES	YES	YES	---	---	YES
9460	---	---	---	YES	YES	YES
9461	---	---	---	YES	YES	---
9462	YES	YES	YES	---	---	---
9463	---	---	---	---	---	YES
9464	YES	YES	YES	---	---	---

CL 86532104_048.eps
020399


A2 HORIZONTAL DEFLECTION
FOR ITEM NR. MARKED WITH ✳
REFER TO DIVERSITY TABLE
RES = RESERVED
0220 DIPMATE
TO 0244 OF CRT PANEL
B
EHTinfo
VideoSupply
MainSupplyGnd
Filament
MainSupply
0255
RES FOR ITV
2450 47u
9453
3453
9451 RES
5451
3451 RES
3452
2451
HORIZONTAL DEFLECTION COIL
0221 VH
2459 680p
3458 1K
5457 L.LIN
2458 10u
6466 6465 BYD33J BYD33J
3454 33K
2457
5445
EHT TO PICTURE TUBE
FOCUS
VG2
TO CRT PANEL
3482
3481
1.9V
3480 27K
2482 68n
2480 RES
3444 RES
3445 RES
2483 RES
3446 RES
EWD_dyn
2448 220p
3448 8K2
2491 470p
6490 BYV27-200
3449 3K3
3450 RES
3491 1R
3492 1R
Vaux
6449 1N4148
6450 1N4148
Hflybk
VlotAux-11V
2489 470u
6485 BYD33J
3485 4R7
2485 4u7
VideoSupply
33V VT_Supply
3442 3K9
6487 BYD33D
3488 4R7
3486 1R
2487 100u
VlotAux+50V
2490 470p
6486 EGP20DL
3487 1R
2486 470u
VlotAux+11V
7480 L78M05
6488 BYV27-200
3490 1R
2488 470u
2484 100n
VlotAux+5V
L1 L2 L3 L4 L5 L6 L7 L8 L9 L10
A2-48 A6-48 A2-71 A4-29 A7-29 A2-50 A3-53 A4-53 A7-14 A2-48
A4-51 A4-52 A2-71 A2-48 A2-50
2492 RES
140V 7460 BU1508DX
2463
6460 BY228/20
2465
6461
2466
2467
2468
9461
9460
2475
9462
3462 6K8
2456 47n
2462 47n
3461 4K7
5461 CU15
3463 47R
2461 1n
41.9V
7461 BF819
0.4V
Hdrive
3468 1K
5465 CU15
5463 CI-15
9463
2464
9464
5480
Filament
6463 1N4148
3465 10R
22.8V
2469 1u
3495 6K8
3496 10K
16.3V
7482 BC857B
0V
3466 39K
3467 15K
3464 1K
3469 3K3
11.5V
11.4V
7463 BC557B
6V
7462 BC547B
2V
6.2V
3447 10K
HEW_Protn
6464 BZX79-F6V2
USA ONLY
VlotAux+11V
3478 220K
2481 470n
6480 BZX79-C27
6481 1N4148
3483 22K
7481 BC557B
3484 10K
3497 10K
BEAMCUR_PROT
P9StbyOn+Protn
EHTinfo
VlotAux+11V
3479 330R
6470 BZX79-C9V1
3470
5470 CU15
5471
3471
2471
2470 470p
2472 2u2
3472
3473 1K
7470 STP16NE06
3474
3475
3476 RES
6471
6473
EW_PROT
3477 100R
9465
6472 1N4148
2473 47u
EWdrive
EWD_dyn
MainSupplyGnd
VlotAuxGnd
ONLY FOR SETS WITH E/W CORRECTION
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G
CL 86532104_047.eps
020399

0220	B2
0221	B6
0255	A4
2448	A9
2450	A5
2451	A6
2456	D1
2457	C6
2458	C6
2459	B6
2461	E2
2462	D2
2463	D4
2464	E6
2465	D4
2466	D4
2467	D5
2468	D5
2469	F8
2470	F4
2471	F4
2472	F4
2473	G6
2475	D6
2480	A9
2481	F7
2482	A9
2483	A9
2484	D10
2485	C10
2486	D10
2487	C10
2488	D10
2489	B10
2490	C9
2491	B9
2492	B2
3442	C10
3444	A9
3445	A9
3446	A10
3447	F10
3448	A9
3449	A9
3450	B10
3451	A6
3452	A6
3453	A5
3454	C6
3458	C6
3461	D2
3462	D2
3463	D3
3464	E9
3465	E8
3466	E9
3467	F9
3468	E2
3469	E10
3470	F3
3471	F4
3472	G4
3473	G4
3474	G4
3475	G4
3476	G5
3477	G6
3478	F7
3479	E3
3480	A8
3481	A8
3482	A7
3483	F8
3484	G9
3485	B9
3486	C9
3487	D9
3488	C9
3490	D9
3491	B9
3492	B9
3495	E8
3496	F8
3497	G9
5445	B7
5451	A6
5457	B6
5461	D2
5463	E7
5465	E6
5470	F4
5471	F5
5480	E8
6449	A10
6450	B10
6460	D4
6461	D4
6463	E7
6464	F10
6465	C6
6466	C6
6470	F3
6471	G5
6472	G5
6473	G5
6480	F7
6481	F8
6485	B9
6486	D9
6487	C9
6488	D9
6490	B9
7460	D3
7461	E2
7462	F10
7463	E10
7470	G4
7480	D10
7481	F8
7482	F8
9451	A6
9453	A5
9460	D6
9461	D5
9462	D6
9463	E6
9464	E6
9465	G6



L1 ⏻ 0.3V DC

L3 ⏻ 138V DC

L6 190 V DC

L7 Ⓘ 32.5V DC

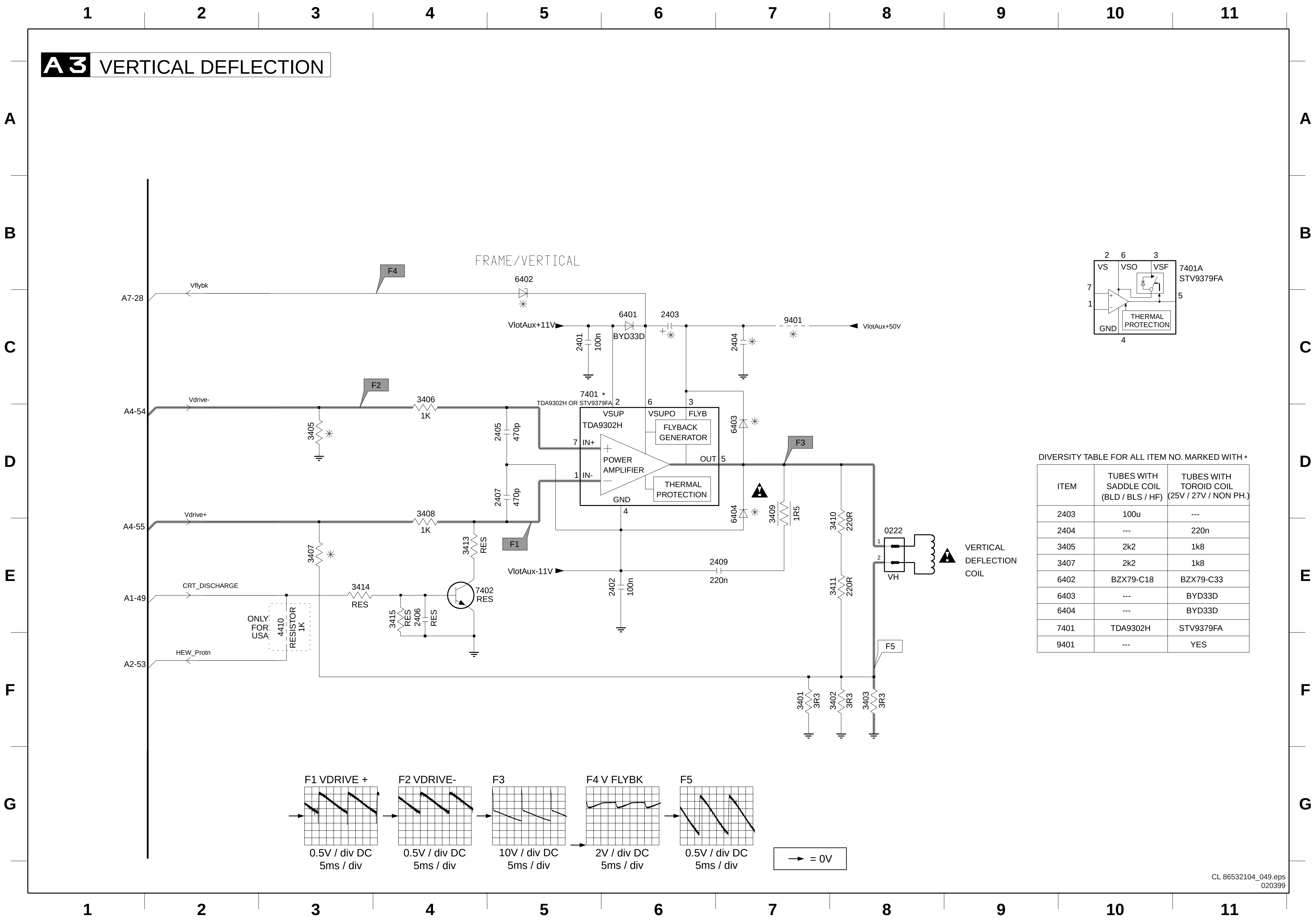
L7 ⏻ 28V DC

L8 Ⓘ 46V DC

L8 ⏻ 30V DC

L10 5V DC

→ = 0V

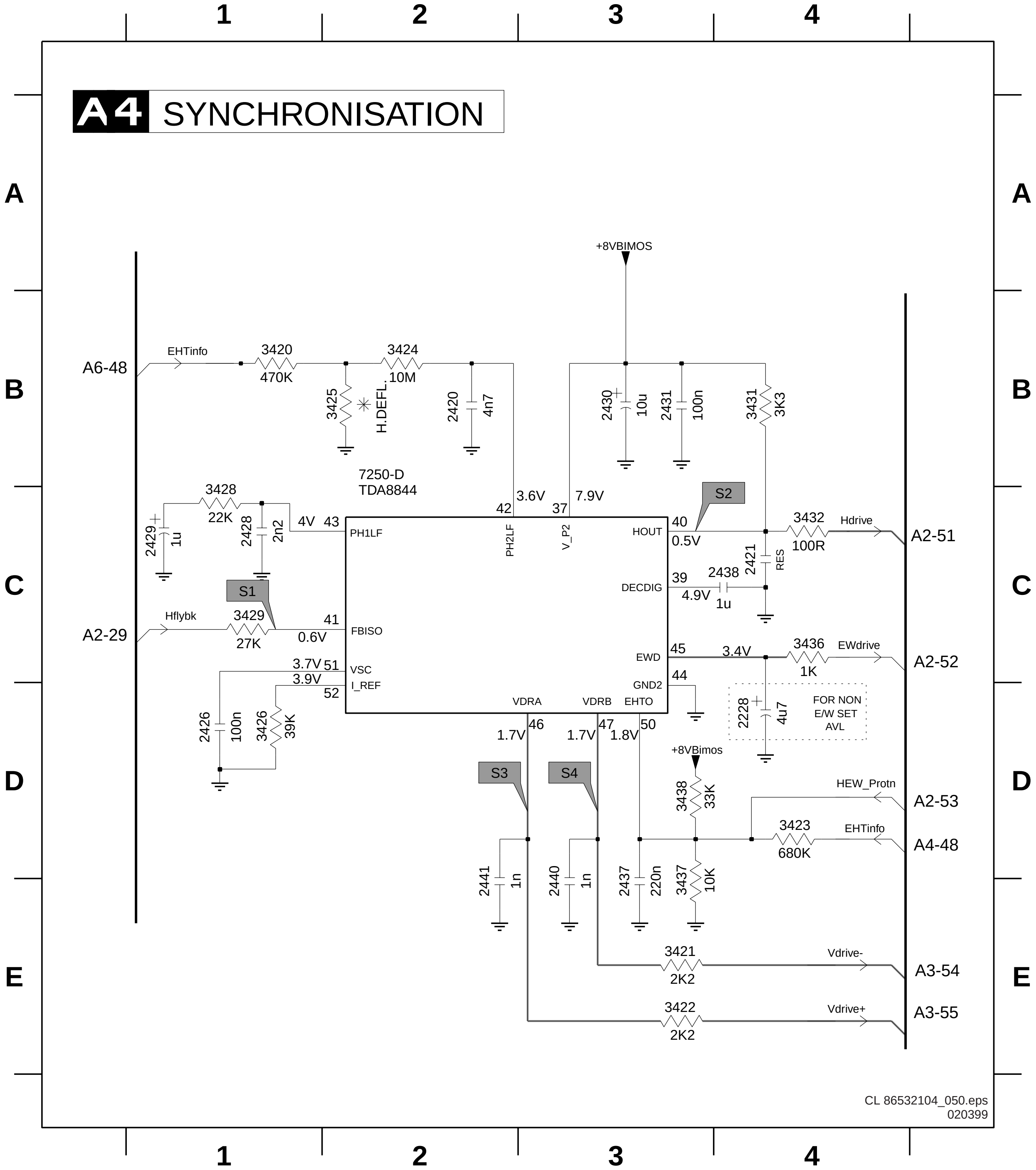

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
A3 VERTICAL DEFLECTION
FRAME/VERTICAL
A7-28
Vflybk
F4
6402
A4-54
Vdrive-
F2
3406
1K
3405
A4-55
Vdrive+
3408
1K
3407
F1
A1-49
CRT_DISCHARGE
3414
RES
3415
RES
2406
RES
3413
RES
7402
RES
ONLY FOR USA
4410
RESISTOR
1K
A2-53
HEW_Protn
VlotAux+11V
2401
100n
6401
BYD33D
2403
9401
VlotAux+50V
2404
2405
470p
2407
470p
7401 *
TDA9302H OR STV9379FA
2
6
3
VSUP
VSUPO
FLYB
TDA9302H
FLYBACK GENERATOR
7 IN+
1 IN-
POWER AMPLIFIER
THERMAL PROTECTION
GND
4
OUT 5
6403
6404
F3
3409
1R5
3410
220R
3411
220R
VlotAux-11V
2402
100n
2409
220n
0222
1
2
VH
VERTICAL DEFLECTION COIL
F5
3401
3R3
3402
3R3
3403
3R3
7401A
STV9379FA
VS
VSO
VSF
THERMAL PROTECTION
GND
F1 VDRIVE +
F2 VDRIVE-
F3
F4 V FLYBK
F5
0.5V / div DC
5ms / div
10V / div DC
2V / div DC
= 0V
CL 86532104_049.eps
020399

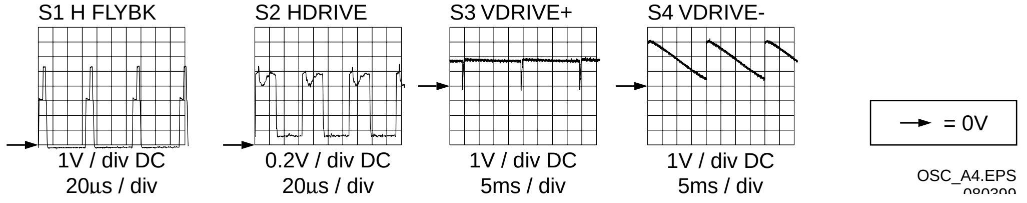
DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH *

ITEM	TUBES WITH SADDLE COIL (BLD / BLS / HF)	TUBES WITH TOROID COIL (25V / 27V / NON PH.)
2403	100u	---
2404	---	220n
3405	2k2	1k8
3407	2k2	1k8
6402	BZX79-C18	BZX79-C33
6403	---	BYD33D
6404	---	BYD33D
7401	TDA9302H	STV9379FA
9401	---	YES

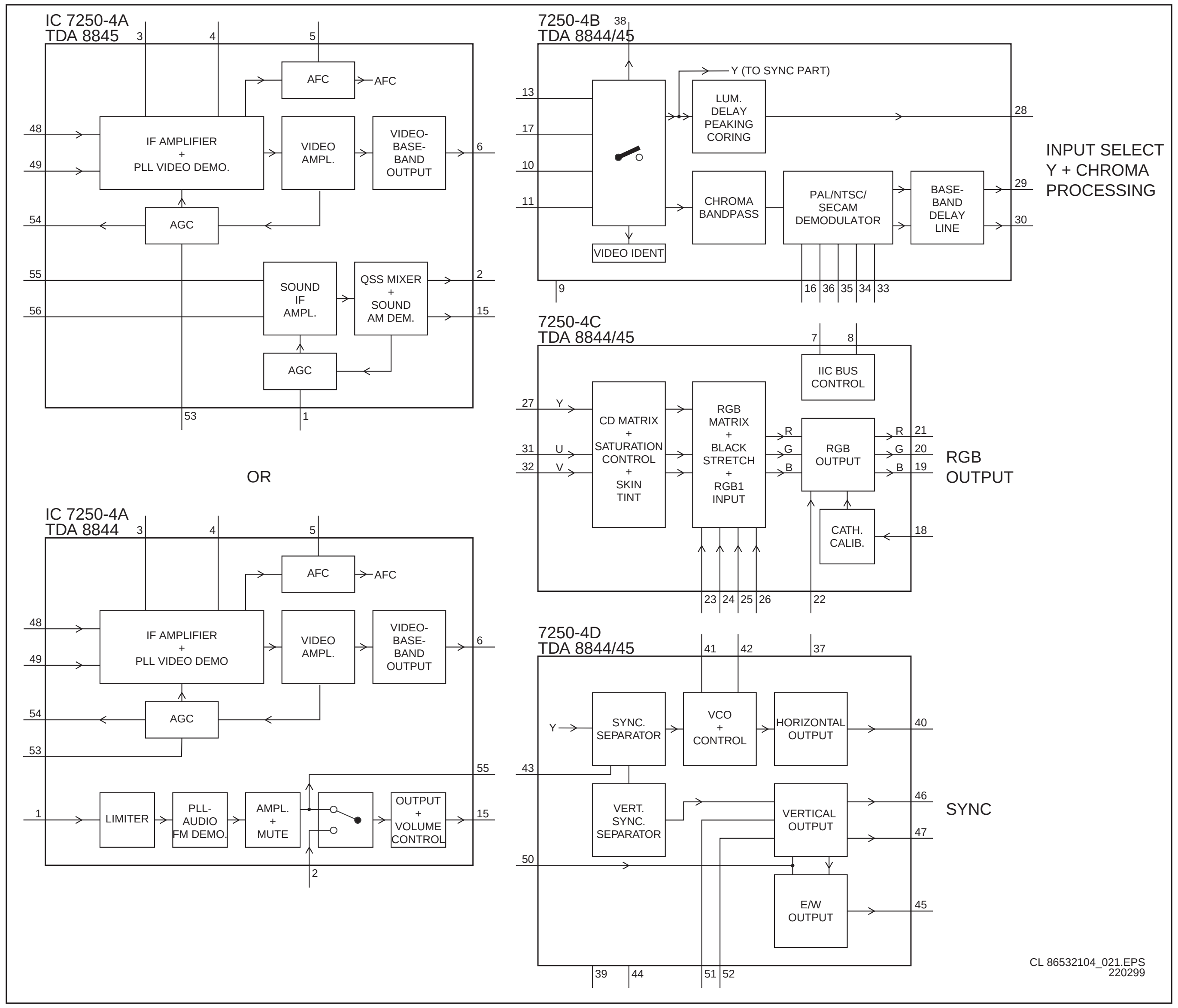
0222	**E8**
2401	**C5**
2402	**E6**
2403	**C6**
2404	**C7**
2405	**D5**
2406	**E4**
2407	**D5**
2409	**E7**
3401	**F7**
3402	**F8**
3403	**F8**
3405	**D3**
3406	**C4**
3407	**E3**
3408	**D4**
3409	**D7**
3410	**E8**
3411	**E8**
3413	**E4**
3414	**E3**
3415	**E4**
4410	**E3**
6401	**C6**
6402	**B5**
6403	**D7**
6404	**D7**
7401	**C5**
7401A	**B11**
7402	**E4**
9401	**C7**

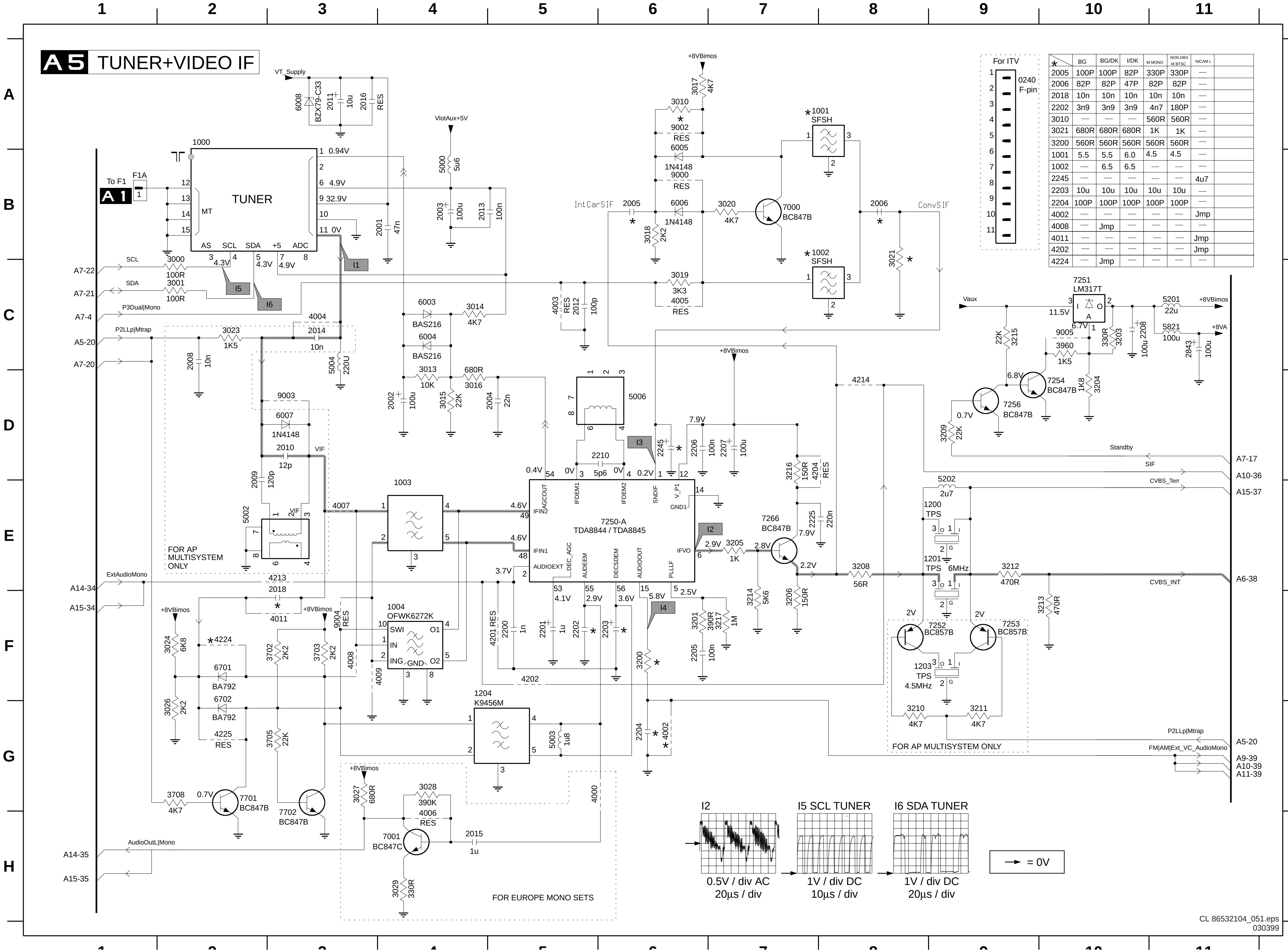
2228 D4	2426 D1	2430 B3	2438 C4	3420 B1	3423 D4	3426 D1	3431 B4	3437 E3
2420 B2	2428 C1	2431 B3	2440 E3	3421 E3	3424 B2	3428 C1	3432 C4	3438 D3
2421 C4	2429 C1	2437 E3	2441 E2	3422 E3	3425 B2	3429 C1	3436 C4	7250-D B2


1
2
3
4
A
B
C
D
E
A4 SYNCHRONISATION
+8VBIMOS
A6-48
EHTinfo
3420
470K
3424
10M
3425
H.DEFL.
2420
4n7
2430
10u
2431
100n
3431
3K3
7250-D
TDA8844
3428
22K
2429
1u
2428
2n2
4V
43
42
3.6V
37
7.9V
S2
40
0.5V
3432
100R
Hdrive
A2-51
PH1LF
PH2LF
V_P2
HOUT
39
2438
4.9V
1u
2421
RES
DECDIG
S1
A2-29
Hflybk
3429
27K
41
0.6V
FBISO
45
3.4V
3436
1K
EWdrive
A2-52
EWD
3.7V
51
3.9V
52
VSC
I_REF
44
GND2
VDRA
VDRB
EHTO
2228
4u7
FOR NON
E/W SET
AVL
2426
100n
3426
39K
46
47
50
1.7V
1.7V
1.8V
+8VBimos
S3
S4
3438
33K
HEW_Protn
A2-53
3423
680K
EHTinfo
A4-48
2441
1n
2440
1n
2437
220n
3437
10K
3421
2K2
Vdrive-
A3-54
3422
2K2
Vdrive+
A3-55
CL 86532104_050.eps
020399



OSC_A4.EPS

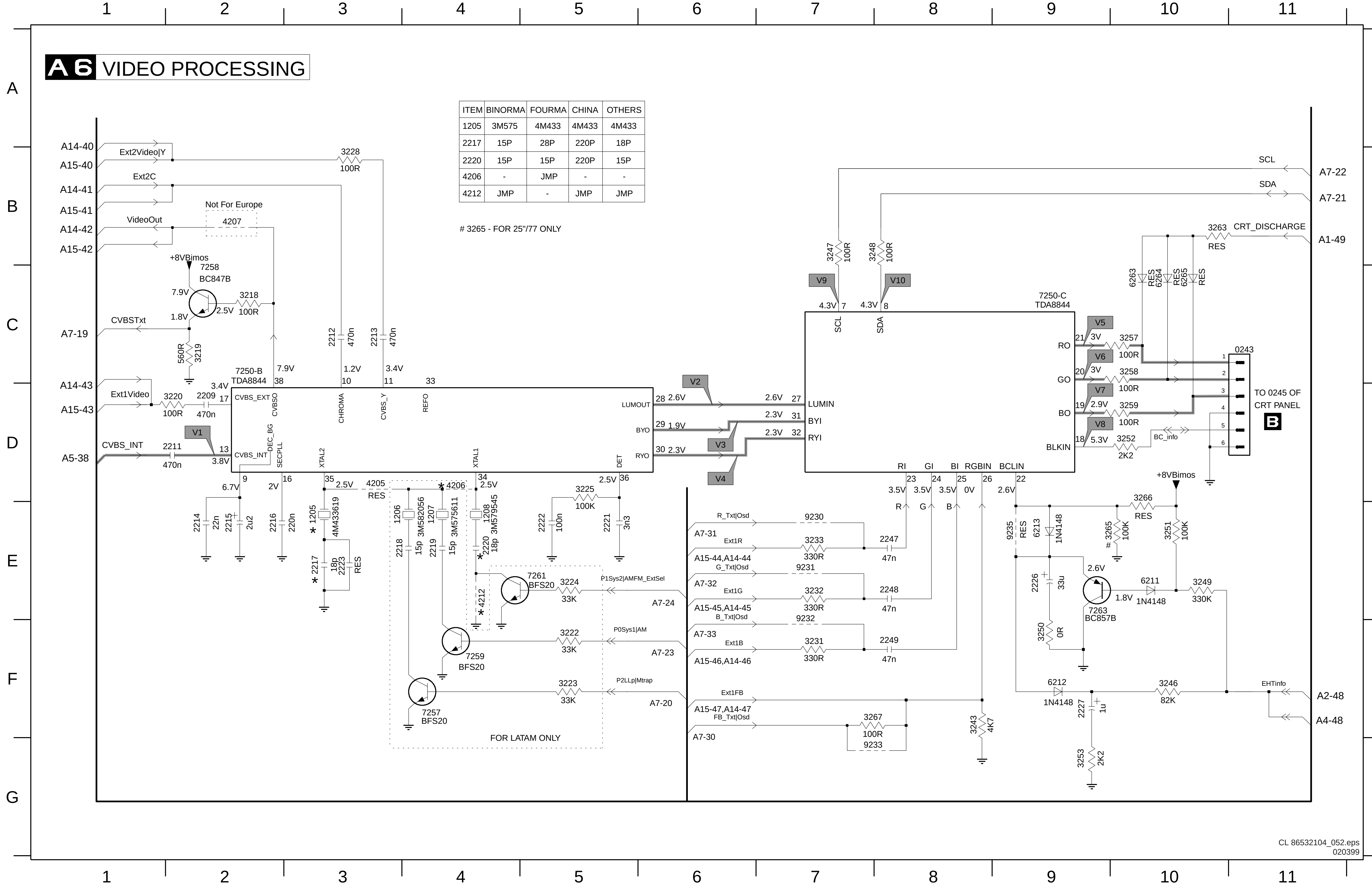

IC 7250-4A
TDA 8845
3
4
5
AFC
AFC
48
49
IF AMPLIFIER
+
PLL VIDEO DEMO.
VIDEO
AMPL.
VIDEO-
BASE-
BAND
OUTPUT
6
54
AGC
55
56
SOUND
IF
AMPL.
QSS MIXER
+
SOUND
AM DEM.
2
15
AGC
53
1
OR
IC 7250-4A
TDA 8844
3
4
5
AFC
AFC
48
49
IF AMPLIFIER
+
PLL VIDEO DEMO
VIDEO
AMPL.
VIDEO-
BASE-
BAND
OUTPUT
6
54
AGC
53
55
1
LIMITER
PLL-
AUDIO
FM DEMO.
AMPL.
+
MUTE
OUTPUT
+
VOLUME
CONTROL
15
2
7250-4B
TDA 8844/45
38
Y (TO SYNC PART)
13
17
10
11
LUM.
DELAY
PEAKING
CORING
28
CHROMA
BANDPASS
PAL/NTSC/
SECAM
DEMODULATOR
BASE-
BAND
DELAY
LINE
29
30
VIDEO IDENT
9
16
36
35
34
33
INPUT SELECT
Y + CHROMA
PROCESSING
7250-4C
TDA 8844/45
7
8
IIC BUS
CONTROL
27
Y
31
U
32
V
CD MATRIX
+
SATURATION
CONTROL
+
SKIN
TINT
RGB
MATRIX
+
BLACK
STRETCH
+
RGB1
INPUT
R
G
B
RGB
OUTPUT
R
G
B
21
20
19
RGB
OUTPUT
CATH.
CALIB.
18
23
24
25
26
22
7250-4D
TDA 8844/45
41
42
37
Y
SYNC.
SEPARATOR
VCO
+
CONTROL
HORIZONTAL
OUTPUT
40
43
VERT.
SYNC.
SEPARATOR
VERTICAL
OUTPUT
46
47
SYNC
50
E/W
OUTPUT
45
39
44
51
52
CL 86532104_021.EPS
220299


A5 TUNER+VIDEO IF
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H
A1
To F1
F1A
1000
TUNER
MT
AS SCL SDA +5 ADC
VT_Supply
6008 BZX79-C33
2011 10u
2016 RES
VlotAux+5V
5000 5u6
2003 100u
2013 100n
2001 47n
SCL
SDA
P3Dual|Mono
P2LLp|Mtrap
A7-22
A7-21
A7-4
A5-20
A7-20
3000 100R
3001 100R
I1
I5
I6
4004
2014 10n
3023 1K5
2008 10n
5004 220U
9003
6007 1N4148
2010 12p
2009 120p
VIF
5002
FOR AP MULTISYSTEM ONLY
6003 BAS216
6004 BAS216
3014 4K7
3013 10K
680R 3016
3015 22K
2002 100u
2004 22n
+8VBimos
3017 4K7
3010
9002 RES
6005 1N4148
9000 RES
6006 1N4148
IntCarSIF
2005
3018 2K2
3020 4K7
7000 BC847B
1001 SFSH
1002 SFSH
2006
ConvSIF
3021
3019 3K3
4005 RES
4003 RES
2012 100p
5006
2210 5p6
I3
2245
2206 100n
2207 100u
7.9V
3216 150R
4204 RES
2225 220n
7250-A TDA8844 / TDA8845
IFIN2 IFIN1 AUDIOEXT AGCOUT IFDEM1 IFDEM2 SNDIF V_P1 GND1 IFVO DEC_AGC AUDEEM DECSDEM AUDIOOUT PLLLF
I2
7266 BC847B
3205 1K
3214 5K6
3206 150R
3201 390R
3217 1M
2205 100n
3200
I4
4214
3208 56R
1003
4007
ExtAudioMono
A14-34
A15-34
4213
2018
4011
1004 OFWK6272K
SWI IN ING GND O1 O2
9004 RES
4008
4009
4201 RES
2200 1n
2201 1u
2202
2203
4202
1204 K9456M
5003 1u8
2204
4002
3024 6K8
4224
6701 BA792
6702 BA792
3026 2K2
4225 RES
3702 2K2
3703 2K2
3705 22K
3708 4K7
7701 BC847B
7702 BC847B
AudioOutL|Mono
A14-35
A15-35
3027 680R
3028 390K
4006 RES
7001 BC847C
2015 1u
3029 330R
4000
FOR EUROPE MONO SETS
For ITV
0240 F-pin
7251 LM317T
Vaux
11.5V
6.7V
5201 22u
5821 100u
+8VA
2208 100u
2843 100u
3215 22K
9005
3960 1K5
330R 3203
1K8 3204
7254 BC847B
7256 BC847B
3209 22K
Standby
SIF
CVBS_Terr
CVBS_INT
A7-17
A10-36
A15-37
A6-38
5202 2u7
1200 TPS
1201 TPS 6MHz
3212 470R
3213 470R
7252 BC857B
7253 BC857B
1203 TPS 4.5MHz
3210 4K7
3211 4K7
FOR AP MULTISYSTEM ONLY
P2LLp|Mtrap
FM|AM|Ext_VC_AudioMono
A5-20
A9-39
A10-39
A11-39
I2
I5 SCL TUNER
I6 SDA TUNER
0.5V / div AC
20µs / div
1V / div DC
10µs / div
1V / div DC
20µs / div
= 0V
CL 86532104_051.eps
030399

*	BG	BG/DK	I/DK	M MONO	NON-DBX M BTSC	NICAM L	
2005	100P	100P	82P	330P	330P	—	
2006	82P	82P	47P	82P	82P	—	
2018	10n	10n	10n	10n	10n	—	
2202	3n9	3n9	3n9	4n7	180P	—	
3010	—	—	—	560R	560R	—	
3021	680R	680R	680R	1K	1K	—	
3200	560R	560R	560R	560R	560R	—	
1001	5.5	5.5	6.0	4.5	4.5	—	
1002	—	6.5	6.5	—	—	—	
2245	—	—	—	—	—	4u7	
2203	10u	10u	10u	10u	10u	—	
2204	100P	100P	100P	100P	100P	—	
4002	—	—	—	—	—	Jmp	
4008	—	Jmp	—	—	—	—	
4011	—	—	—	—	—	Jmp	
4202	—	—	—	—	—	Jmp	
4224	—	Jmp	—	—	—	—	

F1A	**B1**
0240	**A9**
1000	**A2**
1001	**A7**
1002	**B7**
1003	**E4**
1004	**F4**
1200	**E9**
1201	**E9**
1203	**F9**
1204	**G5**
2001	**B4**
2002	**D4**
2003	**B4**
2004	**D5**
2005	**B6**
2006	**B8**
2008	**C2**
2009	**D2**
2010	**D3**
2011	**A3**
2012	**C5**
2013	**B4**
2014	**C3**
2015	**H4**
2016	**A3**
2018	**F3**
2200	**F5**
2201	**F5**
2202	**F5**
2203	**F6**
2204	**G6**
2205	**F6**
2206	**D6**
2207	**D7**
2208	**C10**
2210	**D6**
2225	**E7**
2245	**D6**
2843	**C11**
3000	**C2**
3001	**C2**
3010	**A6**
3013	**D4**
3014	**C4**
3015	**D4**
3016	**D4**
3017	**A6**
3018	**B6**
3019	**C6**
3020	**B7**
3021	**B8**
3023	**C2**
3024	**F2**
3026	**G2**
3027	**G3**
3028	**G4**
3029	**H4**
3200	**F6**
3201	**F6**
3203	**C10**
3204	**D10**
3205	**E7**
3206	**F7**
3208	**E8**
3209	**D9**
3210	**G8**
3211	**G9**
3212	**E9**
3213	**F10**
3214	**F7**
3215	**C10**
3216	**D7**
3217	**F7**
3702	**F3**
3703	**F3**
3705	**G3**
3708	**G2**
3960	**C10**
4000	**G5**
4002	**G6**
4003	**C5**
4004	**C3**
4005	**C6**
4006	**H4**
4007	**E3**
4008	**F3**
4009	**F4**
4011	**F3**
4201	**F5**
4202	**F5**
4204	**D7**
4213	**E3**
4214	**D8**
4224	**F2**
4225	**G2**
5000	**B4**
5002	**E2**
5003	**G5**
5004	**C3**
5006	**D6**
5201	**C11**
5202	**E9**
5821	**C11**
6003	**C4**
6004	**C4**
6005	**B6**
6006	**B6**
6007	**D3**
6008	**A3**
6701	**F2**
6702	**G2**
7000	**B7**
7001	**H4**
7250-A	**E6**
7251	**C10**
7252	**F8**
7253	**F9**
7254	**D10**
7256	**D9**
7266	**E7**
7701	**G2**
7702	**H3**
9000	**B6**
9002	**A6**
9003	**D3**
9004	**F3**
9005	**C10**

A6 VIDEO PROCESSING

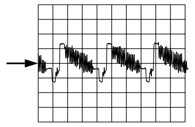

1 2 3 4 5 6 7 8 9 10 11
A B C D E F G
A14-40
A15-40
Ext2Video|Y
3228
100R
A14-41
Ext2C
A15-41
Not For Europe
4207
VideoOut
A14-42
A15-42
+8VBimos
7258
BC847B
7.9V
3218
100R
2.5V
1.8V
CVBSTxt
A7-19
560R
3219
2212
470n
2213
470n
7250-B
TDA8844
7.9V
1.2V
3.4V
A14-43
Ext1Video
A15-43
3220
100R
2209
470n
3.4V
17
38
10
11
33
CVBS_EXT
CVBSO
CHROMA
CVBS_Y
REFO
LUMOUT
BYO
RYO
28 2.6V
29 1.9V
30 2.3V
V1
V2
V3
V4
CVBS_INT
A5-38
2211
470n
13
3.8V
CVBS_INT
DEC_BG
SECPLL
XTAL2
XTAL1
DET
9
6.7V
2V
16
35
2.5V
4205
RES
4206
34
2.5V
2.5V
36
3225
100K
2214
22n
2215
2u2
2216
220n
1205
4M433619
2217
18p
2223
RES
1206
3M582056
2218
15p
1207
3M575611
2219
15p
1208
3M579545
2220
18p
4212
2222
100n
2221
3n3
7261
BFS20
3224
33K
P1Sys2|AMFM_ExtSel
A7-24
7259
BFS20
3222
33K
P0Sys1|AM
A7-23
7257
BFS20
3223
33K
P2LLp|Mtrap
A7-20
FOR LATAM ONLY
SCL
A7-22
SDA
A7-21
3263
RES
CRT_DISCHARGE
A1-49
3247
100R
3248
100R
V9
V10
4.3V 7
4.3V 8
SCL
SDA
7250-C
TDA8844
6263
RES
6264
RES
6265
RES
2.6V 27
2.3V 31
2.3V 32
LUMIN
BYI
RYI
RO
GO
BO
BLKIN
21 3V
20 3V
19 2.9V
18 5.3V
V5
V6
V7
V8
3257
100R
3258
100R
3259
100R
3252
2K2
BC_info
0243
1 2 3 4 5 6
TO 0245 OF
CRT PANEL
B
RI GI BI RGBIN BCLIN
23 24 25 26 22
3.5V 3.5V 3.5V 0V 2.6V
R G B
+8VBimos
R_Txt|Osd
9230
A7-31
Ext1R
3233
330R
2247
47n
A15-44,A14-44
G_Txt|Osd
9231
A7-32
Ext1G
3232
330R
2248
47n
A15-45,A14-45
B_Txt|Osd
9232
A7-33
Ext1B
3231
330R
2249
47n
A15-46,A14-46
Ext1FB
A15-47,A14-47
FB_Txt|Osd
A7-30
3267
100R
9233
3243
4K7
9235
RES
6213
1N4148
3266
RES
# 3265
100K
3251
100K
2226
33u
2.6V
7263
BC857B
1.8V
6211
1N4148
3249
330K
3250
0R
6212
1N4148
3246
82K
EHTinfo
A2-48
A4-48
2227
1u
3253
2K2
CL 86532104_052.eps
020399

ITEM	BINORMA	FOURMA	CHINA	OTHERS
1205	3M575	4M433	4M433	4M433
2217	15P	28P	220P	18P
2220	15P	15P	220P	15P
4206	-	JMP	-	-
4212	JMP	-	JMP	JMP

# 3265 - FOR 25"/77 ONLY

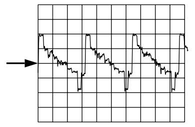
0243	C11
1205	E3
1206	E3
1207	E4
1208	E4
2209	D2
2211	D2
2212	C3
2213	C3
2214	E2
2215	E2
2216	E2
2217	E3
2218	E4
2219	E4
2220	E4
2221	E5
2222	E5
2223	E3
2226	E9
2227	F9
2247	E8
2248	E8
2249	F8
3218	C2
3219	C2
3220	D2
3222	F5
3223	F5
3224	E5
3225	D5
3228	B3
3231	F7
3232	E7
3233	E7
3243	F8
3246	F10
3247	B7
3248	B8
3249	E10
3250	F9
3251	E10
3252	D10
3253	G9
3257	C10
3258	C10
3259	D10
3263	B10
3265	E10
3266	D10
3267	F7
4205	D3
4206	D4
4207	B2
4212	E4
6211	E10
6212	F9
6213	E9
6263	C10
6264	C10
6265	C10
7250-B	C2
7250-C	C9
7257	F4
7258	B2
7259	F4
7261	E5
7263	E9
9230	E7
9231	E7
9232	F7
9233	G7
9235	E9

V1 CVBS-INT



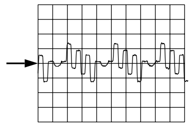
0.5V / div AC
20µs / div

V2



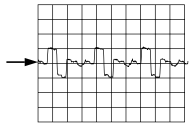
0.5V / div AC
20µs / div

V3



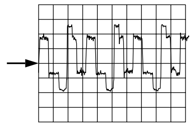
0.5V / div AC
20µs / div

V4



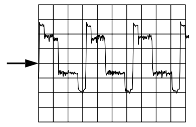
0.5V / div AC
20µs / div

V5



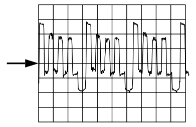
0.5V / div AC
20µs / div

V6



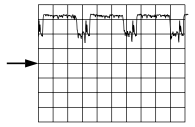
0.5V / div AC
20µs / div

V7



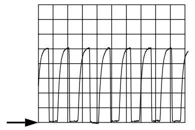
0.5V / div AC
20µs / div

V8



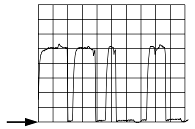
2V / div DC
20µs / div

V9 SCL 7250



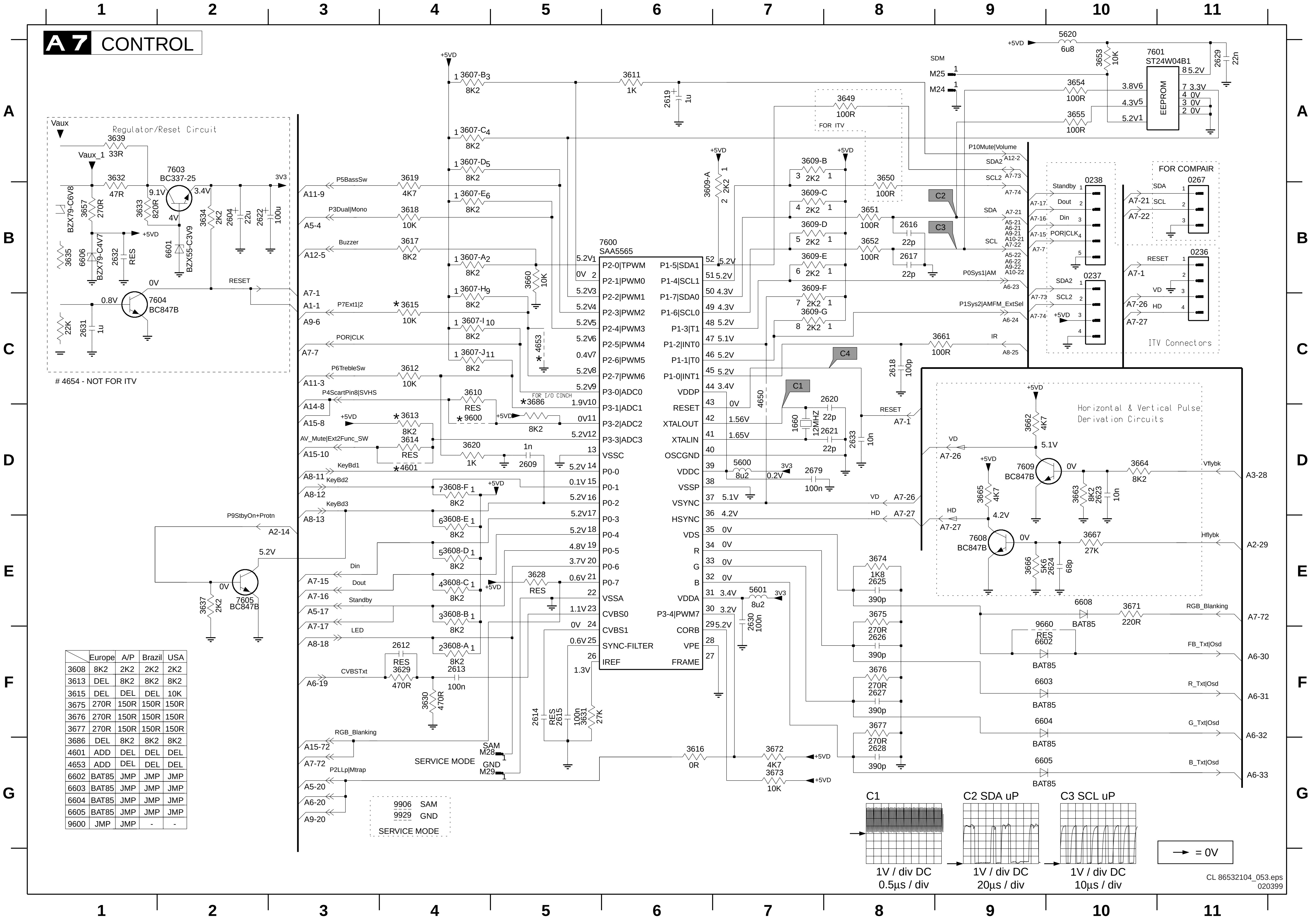
1V / div DC
10µs / div

V10 SDA 7250



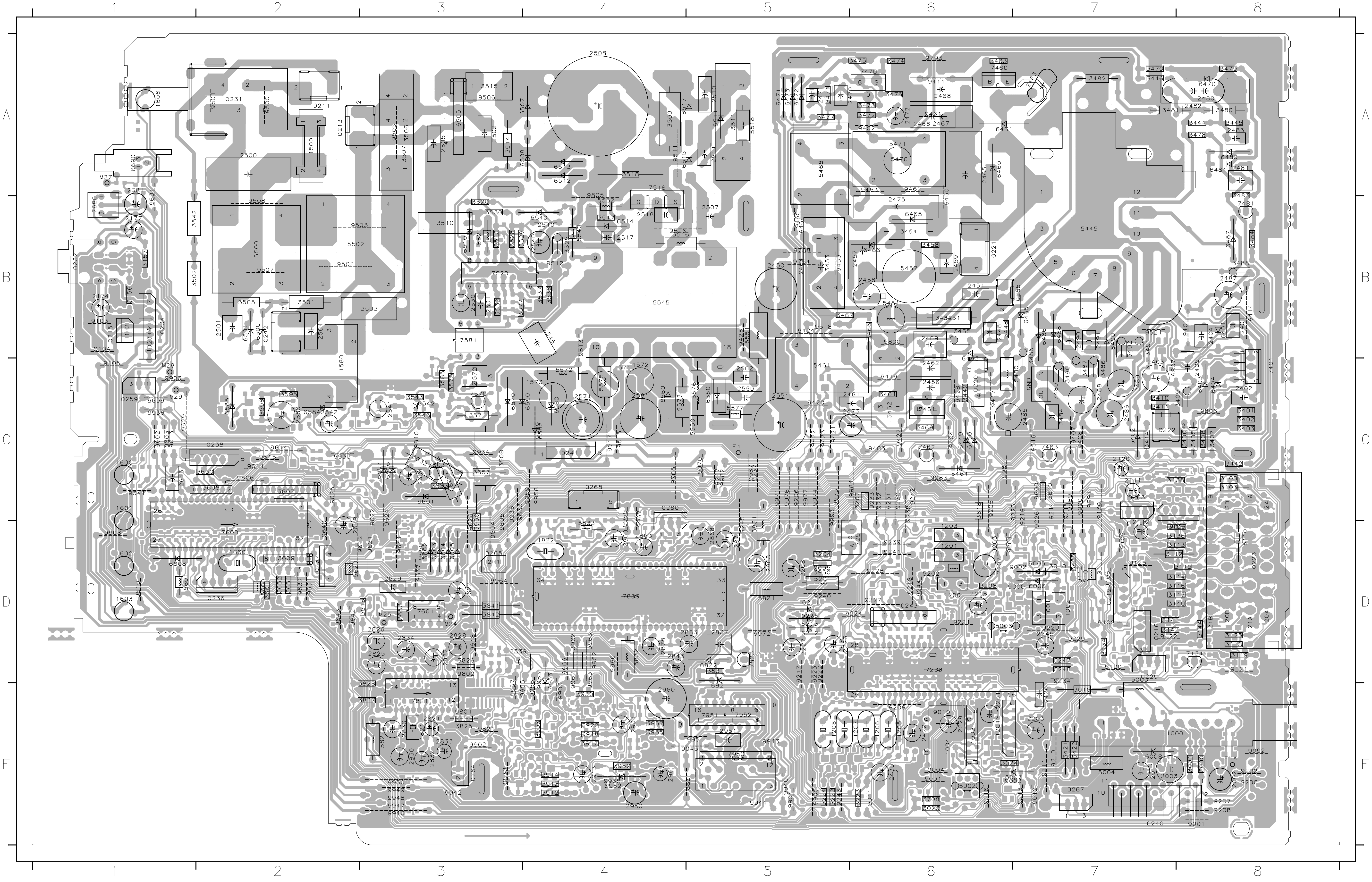
1V / div DC
20µs / div

→ = 0V


A7 CONTROL
Regulator/Reset Circuit
Vaux
3639 33R
Vaux_1
3632 47R
7603 BC337-25
9.1V
3.4V
4V
3V3
BZX79-C6V8
3657 270R
3633 820R
3634 2K2
2604 22u
2622 100u
BZX79-C4V7
6606
3635
2632 RES
6601 BZX55-C3V9
+5VD
0V
RESET
0.8V
7604 BC847B
3636 22K
2631 1u
# 4654 - NOT FOR ITV
P9StbyOn+Protn
A2-14
5.2V
0V
7605 BC847B
3637 2K2
+5VD
3607-B 8K2
3607-C 8K2
3607-D 8K2
3607-E 8K2
3607-A 8K2
3607-H 8K2
3607-I 8K2
3607-J 8K2
3611 1K
2619 1u
3660 10K
4653
P5BassSw
3619 4K7
A11-9
P3Dual|Mono
3618 10K
A5-4
Buzzer
3617 8K2
A12-5
A7-1
A1-1
P7Ext1|2
3615 10K
A9-6
POR|CLK
A7-7
P6TrebleSw
3612 10K
A11-3
P4ScartPin8|SVHS
3610 RES
9600
FOR I/O CINCH
3686 8K2
A14-8
3613 8K2
A15-8
AV_Mute|Ext2Func_SW
3614 RES
A15-10
4601
3620 1K
2609 1n
KeyBd1
A8-11
KeyBd2
A8-12
KeyBd3
A8-13
3608-F 8K2
3608-E 8K2
3608-D 8K2
3608-C 8K2
3608-B 8K2
3608-A 8K2
Din
A7-15
Dout
A7-16
Standby
A5-17
A7-17
LED
A8-18
3628 RES
2612 RES
3629 470R
2613 100n
CVBSTxt
A6-19
3630 470R
2614
2615 RES
100n
3631 27K
RGB_Blanking
A15-72
A7-72
SAM
M28
GND
M29
SERVICE MODE
P2LLp|Mtrap
A5-20
A6-20
A9-20
9906 SAM
9929 GND
SERVICE MODE
7600 SAA5565
P2-0|TPWM
P2-1|PWM0
P2-2|PWM1
P2-3|PWM2
P2-4|PWM3
P2-5|PWM4
P2-6|PWM5
P2-7|PWM6
P3-0|ADC0
P3-1|ADC1
P3-2|ADC2
P3-3|ADC3
VSSC
P0-0
P0-1
P0-2
P0-3
P0-4
P0-5
P0-6
P0-7
VSSA
CVBS0
CVBS1
SYNC-FILTER
IREF
P1-5|SDA1
P1-4|SCL1
P1-7|SDA0
P1-6|SCL0
P1-3|T1
P1-2|INT0
P1-1|T0
P1-0|INT1
VDDP
RESET
XTALOUT
XTALIN
OSCGND
VDDC
VSSP
VSYNC
HSYNC
VDS
R
G
B
VDDA
P3-4|PWM7
CORB
VPE
FRAME
3609-A 2K2
3609-B 2K2
3609-C 2K2
3609-D 2K2
3609-E 2K2
3609-F 2K2
3609-G 2K2
3649 100R
FOR ITV
3650 100R
3651 100R
3652 100R
2616 22p
2617 22p
C1
C2
C3
C4
4650
1660 12MHZ
2620 22p
2621 22p
2633 10n
2618 100p
3661 100R
IR
5600 8u2
2679 100n
5601 8u2
2630 100n
3616 0R
3672 4K7
3673 10K
3674 1K8
2625 390p
3675 270R
2626 390p
3676 270R
2627 390p
3677 270R
2628 390p
5620 6u8
3653 10K
7601 ST24W04B1
EEPROM
2629 22n
3654 100R
3655 100R
SDM
M25
M24
P10Mute|Volume
SDA2
SCL2
SDA
SCL
P0Sys1|AM
P1Sys2|AMFM_ExtSel
Standby
Dout
Din
POR|CLK
0238
0237
0236
0267
FOR COMPAIR
ITV Connectors
Horizontal & Vertical Pulse Derivation Circuits
3662 4K7
5.1V
7609 BC847B
3663 8K2
2623 10n
3664 8K2
Vflybk
A3-28
3665 4K7
4.2V
7608 BC847B
3667 27K
Hflybk
A2-29
3666 5K6
2624 68p
6608 BAT85
3671 220R
A7-72
9660 RES
6602 BAT85
FB_Txt|Osd
A6-30
6603 BAT85
R_Txt|Osd
A6-31
6604 BAT85
G_Txt|Osd
A6-32
6605 BAT85
B_Txt|Osd
A6-33
C1
C2 SDA uP
C3 SCL uP
1V / div DC 0.5µs / div
1V / div DC 20µs / div
1V / div DC 10µs / div
= 0V
CL 86532104_053.eps
020399

	Europe	A/P	Brazil	USA
3608	8K2	2K2	2K2	2K2
3613	DEL	8K2	8K2	8K2
3615	DEL	DEL	DEL	10K
3675	270R	150R	150R	150R
3676	270R	150R	150R	150R
3677	270R	150R	150R	150R
3686	DEL	8K2	8K2	8K2
4601	ADD	DEL	DEL	DEL
4653	ADD	DEL	DEL	DEL
6602	BAT85	JMP	JMP	JMP
6603	BAT85	JMP	JMP	JMP
6604	BAT85	JMP	JMP	JMP
6605	BAT85	JMP	JMP	JMP
9600	JMP	JMP	-	-

M24	**A8**
M25	**A8**
M28	**G4**
M29	**G4**
0236	**B11**
0237	**C10**
0238	**B10**
0267	**B11**
1660	**D7**
2604	**B2**
2609	**D5**
2612	**F4**
2613	**F4**
2614	**F5**
2615	**F5**
2616	**B8**
2617	**B8**
2618	**C8**
2619	**A6**
2620	**D8**
2621	**D8**
2622	**B2**
2623	**D10**
2624	**E10**
2625	**E8**
2626	**F8**
2627	**F8**
2628	**G8**
2629	**A11**
2630	**F7**
2631	**C1**
2632	**B1**
2633	**D8**
2679	**D7**
3607-A	**B4**
3607-B	**A4**
3607-C	**A4**
3607-D	**B4**
3607-E	**B4**
3607-H	**C4**
3607-I	**C4**
3607-J	**C4**
3608-A	**F4**
3608-B	**F4**
3608-C	**E4**
3608-D	**E4**
3608-E	**E4**
3608-F	**D4**
3609-A	**B6**
3609-B	**A7**
3609-C	**B7**
3609-D	**B7**
3609-E	**B7**
3609-F	**C7**
3609-G	**C7**
3610	**D4**
3611	**A6**
3612	**C4**
3613	**D4**
3614	**D4**
3615	**C4**
3616	**G6**
3617	**B4**
3618	**B4**
3619	**B4**
3620	**D4**
3628	**E5**
3629	**F4**
3630	**F4**
3631	**F5**
3632	**B1**
3633	**B2**
3634	**B2**
3635	**B1**
3636	**C1**
3637	**E2**
3639	**A1**
3649	**A8**
3650	**B8**
3651	**B8**
3652	**B8**
3653	**A10**
3654	**A10**
3655	**A10**
3657	**B1**
3660	**C5**
3661	**C9**
3662	**D9**
3663	**D10**
3664	**D10**
3665	**D9**
3666	**E9**
3667	**E10**
3671	**F10**
3672	**G7**
3673	**G7**
3674	**E8**
3675	**F8**
3676	**F8**
3677	**G8**
3686	**D5**
4601	**D4**
4650	**D7**
4653	**C5**
4654	**B1**
5600	**D7**
5601	**E7**
5620	**A10**
6601	**B2**
6602	**F9**
6603	**F9**
6604	**F9**
6605	**G9**
6606	**B1**
6607	**B1**
6608	**E10**
7600	**B5**
7601	**A10**
7603	**B2**
7604	**C2**
7605	**E2**
7608	**E9**
7609	**D9**
9600	**D4**
9660	**F9**


A
B
C
D
E

F1	C5
F1A	E8
M24	D3
M25	D3
M27	A1
M28	C1
M29	C1
0211	A2
0212	B2
0213	A2
0215	B1
0216	D7
0219	D7
0220	C6
0221	B6
0222	C7
0223	D8
0227	C8
0229	D7
0231	A2
0232	B1
0234	B1
0234A	B1
0236	D2
0237	D2
0238	C2
0240	E7
0241	C4
0243	D6
0255	B6
0259	C1
0260	D4
0263	C7
0264	E3
0265	D3
0267	E7
0268	C4
1000	E7
1001	D7
1002	D7
1003	E6
1004	E6
1200	D6
1201	D6
1203	D6
1204	E6
1205	E6
1206	E6
1207	E5
1208	E5
1500	A2
1571	C4
1572	C4
1573	C4
1580	C2
1600	C1
1601	C1
1602	D1
1603	D1
1606	A1
1660	D2
1821	E3
1822	D4
2002	E8
2003	E7
2011	E7
2111	C7
2112	D7
2120	C7
2174	B1
2177	B1
2201	E6
2203	E7
2207	D6
2208	D5
2215	D6
2226	D5
2227	D5
2228	E6
2245	D7
2401	B8
2402	C8
2403	C7
2404	B8
2409	C8
2426	E7
2429	E6
2430	E6
2448	B6
2450	B5
2451	B6
2456	C6
2457	B6
2458	B6
2459	B6
2461	C6
2462	C6
2463	A7
2464	B5
2465	A6
2466	A6
2467	A6
2468	A6
2469	B6
2470	A5
2471	A5
2472	A6
2473	C6
2475	B6
2480	A8
2481	A8
2482	A8
2483	A8
2484	C7
2485	C6
2486	C7
2487	B8
2488	C7
2489	C7
2490	B7
2491	B7
2500	A2
2501	B2
2502	A3
2504	B2
2505	A3
2507	B5
2508	A4
2510	A5
2511	A5
2517	B4
2518	B4
2530	B3
2531	B3
2540	B4
2541	C3
2542	C2
2545	B4
2550	C5
2551	C5
2561	C4
2562	C5
2571	C4
2577	C4
2586	C2
2604	C3
2613	C1
2619	D2
2622	D3
2629	D3
2681	B1
2821	E3
2825	D3
2826	D3
2827	D3
2828	D3
2830	E3
2832	E3
2833	E3
2834	D3
2836	E3
2837	D5
2839	D3
2843	D4
2860	D4
2863	D4
2868	D5
2871	D5
2878	D4
2883	D5
2888	D5
2913	E4
2931	E4
2950	E4
2951	E5
2960	E4
2961	E4
3000	E8
3001	E8
3010	D7
3016	E7
3023	E6
3024	E6
3103	C8
3105	D8
3108	C8
3112	D7
3113	D8
3114	D8
3115	D8
3116	D8
3117	D8
3118	D8
3119	D8
3123	D8
3134	D7
3136	D8
3138	C7
3140	D8
3141	D7
3142	D7
3144	D8
3156	B1
3157	B1
3204	D5
3208	D6
3222	E5
3223	E6
3224	E5
3247	D7
3248	D7
3267	C6
3401	C8
3402	C8
3403	C8
3405	C8
3406	C8
3407	C8
3408	C8
3409	C8
3410	C7
3411	C7
3414	C7
3421	E7
3422	E7
3438	D7
3442	C8
3444	A8
3445	A8
3446	A7
3448	B6
3449	C6
3451	B6
3452	B6
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9983	C6
9984	C6
9987	C5
9989	C7
9990	C7
9991	C7
9992	E8
9993	C5

MAIN-MAPT. eps
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1601	B4
1602	B3
1603	B3
1606	B2
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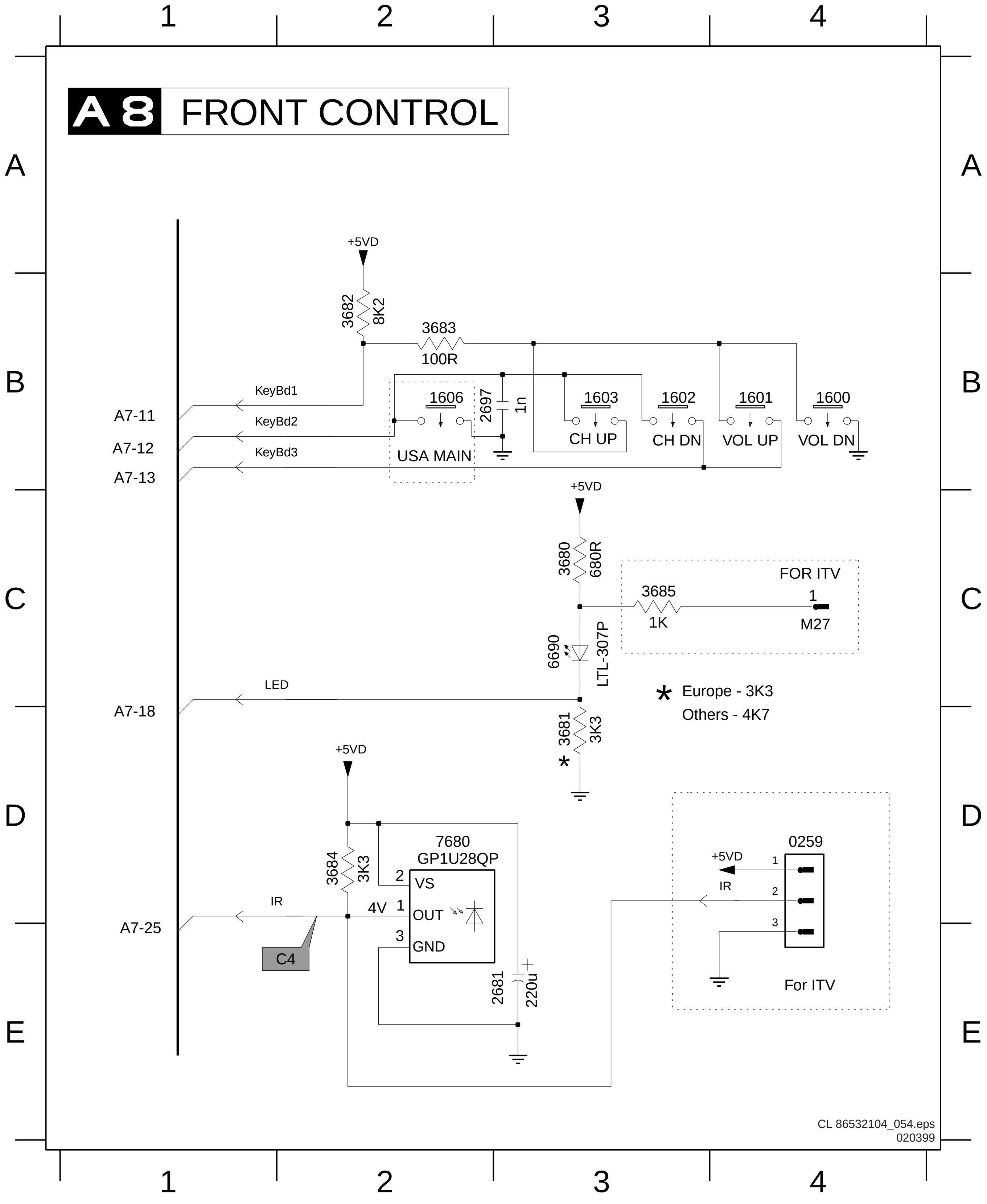

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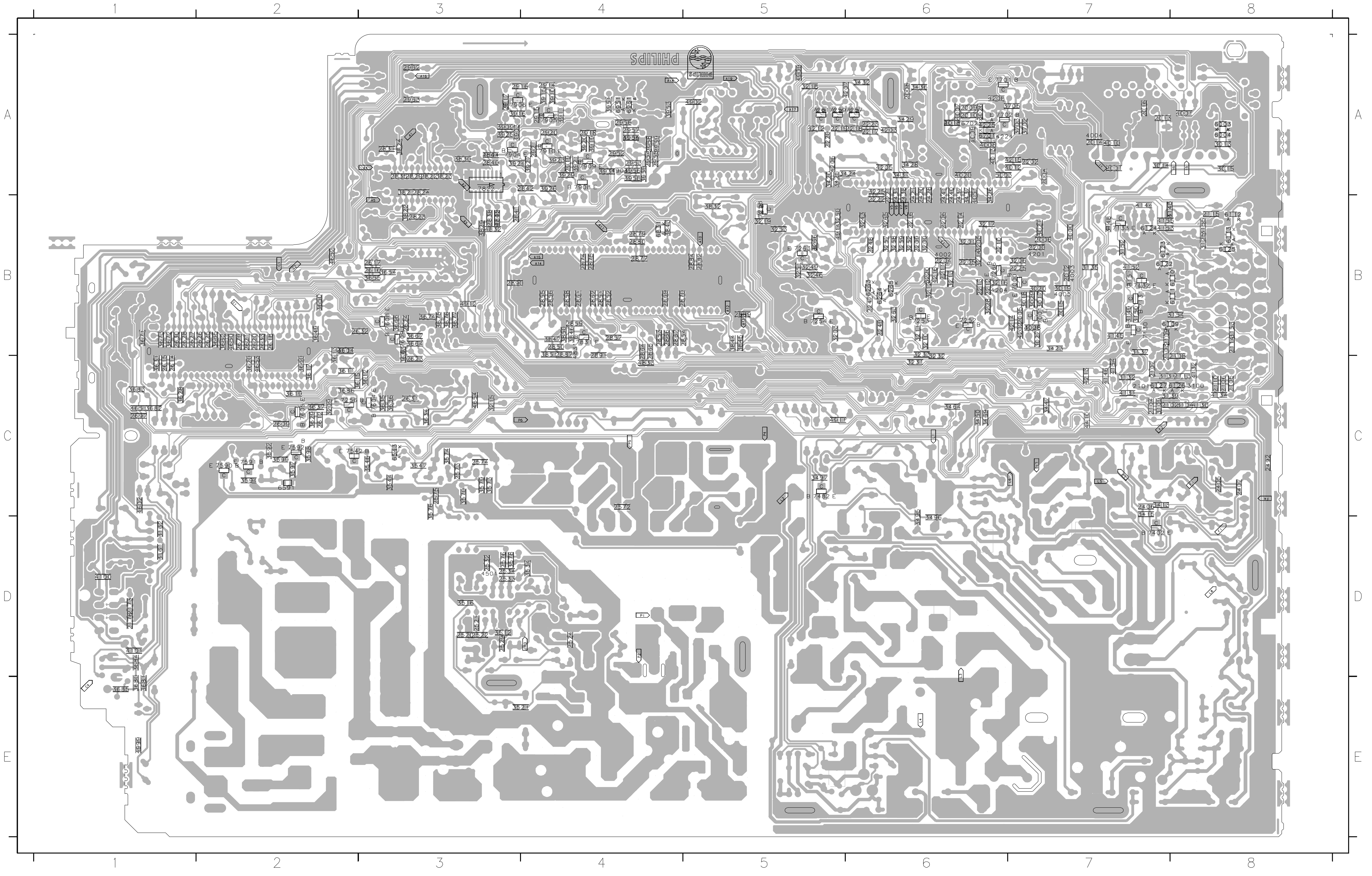
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E
PHILIPS

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1104	B8	2877	B4	3649	B2	6265	B6
1105	B8	2879	B4	3650	B2	6543	C3
1106	B8	2880	B4	3654	B3	6591	C2
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1108	B8	2884	B5	3660	C2	6702	A6
1109	B8	2887	B4	3662	B2	6831	B4
1110	C8	2889	B5	3663	B3	6951	A4
1111	C8	2890	B3	3664	B3	6961	A4
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1113	B8	2914	A4	3666	B3	7001	B7
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2008	A6	2957	A4	3684	D1	7263	B5
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2010	A6	2959	A4	3686	C2	7402	D7
2012	B7	2962	A3	3702	A7	7482	C5
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2014	A7	3013	A8	3705	A7	7590	C2
2015	B7	3014	A7	3821	A3	7591	C2
2016	A7	3015	A8	3822	B3	7592	C2
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2114	B8	3125	B8	3909	A3	7909	A4
2115	B8	3131	C7	3910	A4	7910	A4
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MAIN-MAPB.eps
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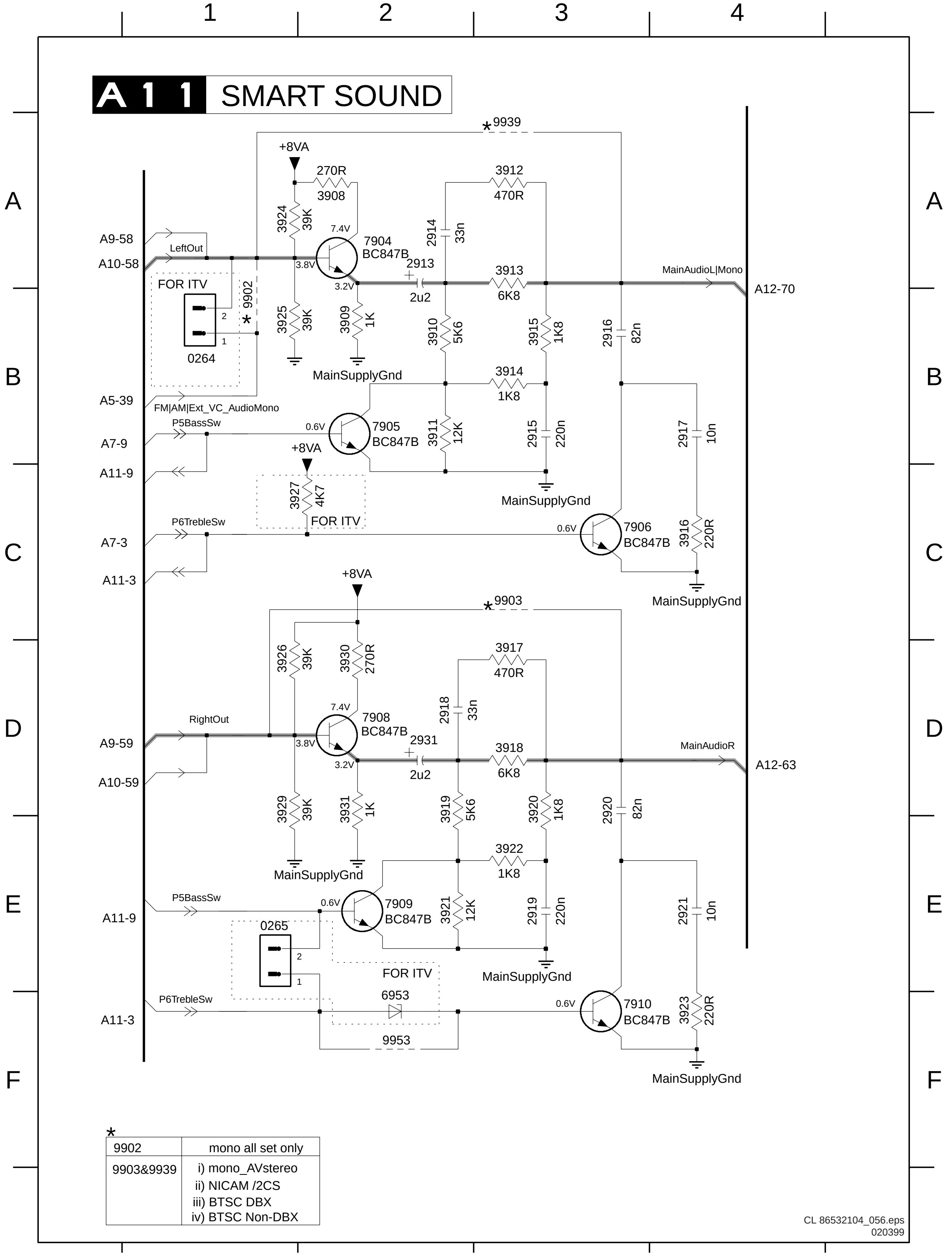
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2917 10n
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+8VA
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FOR ITV
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A11-3
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+8VA
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3917 470R
2918 33n
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7908 BC847B
RightOut
A9-59
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3.2V
2931
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MainSupplyGnd
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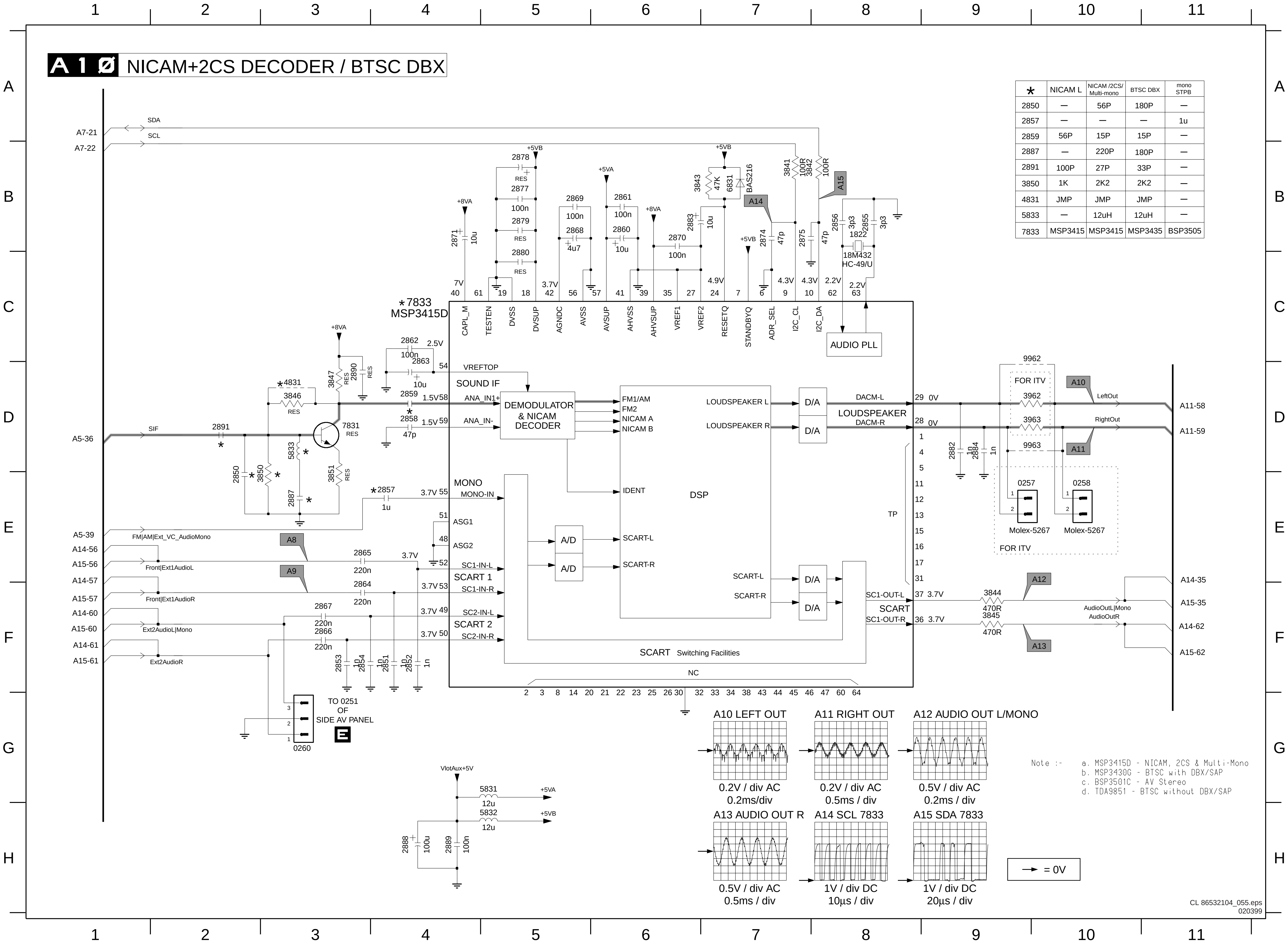
9902	mono all set only
9903&9939	i) mono_AVstereo ii) NICAM /2CS iii) BTSC DBX iv) BTSC Non-DBX

A10 NICAM+2CS DECODER / BTSC DBX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A9
TO 0251
OF
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CAPL_M
TESTEN
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DVSUP
AGNDC
AVSS
AVSUP
AHVSS
AHVSUP
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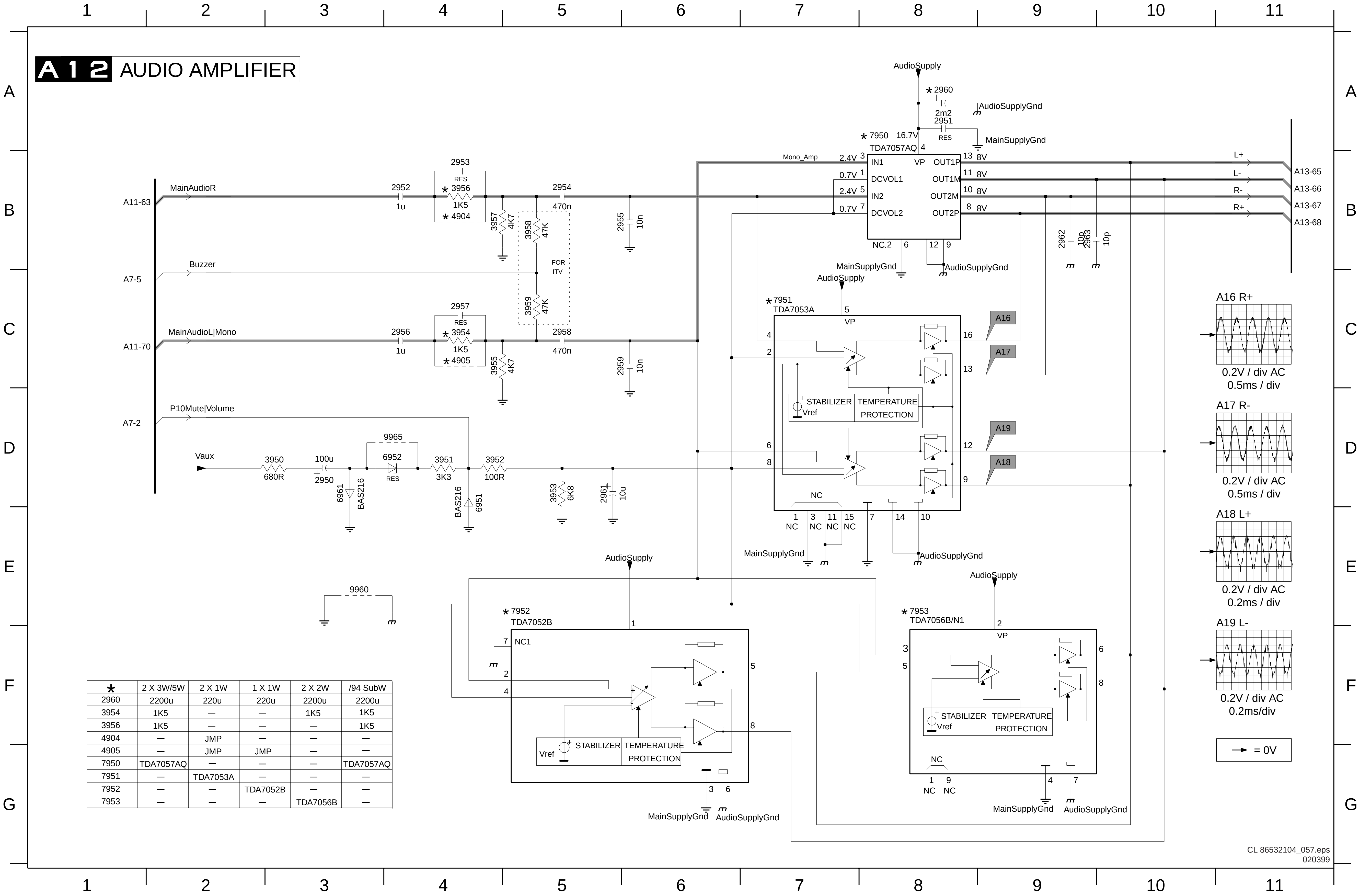
VREF2
RESETQ
STANDBYQ
ADR_SEL
I2C_CL
I2C_DA
AUDIO PLL
SOUND IF
VREFTOP
ANA_IN1+
ANA_IN-
DEMODULATOR
& NICAM
DECODER
FM1/AM
FM2
NICAM A
NICAM B
IDENT
DSP
LOUDSPEAKER L
LOUDSPEAKER R
D/A
DACM-L
DACM-R
LOUDSPEAKER
MONO
MONO-IN
ASG1
ASG2
SCART 1
SC1-IN-L
SC1-IN-R
SCART 2
SC2-IN-L
SC2-IN-R
A/D
SCART-L
SCART-R
SC1-OUT-L
SC1-OUT-R
SCART
SCART Switching Facilities
NC
TP
7831
RES
+8VA
+5VB
+5VA
1822
18M432
HC-49/U
BAS216
A14
A15
9962
FOR ITV
A10
A11
3962
3963
9963
LeftOut
RightOut
A11-58
A11-59
0257
0258
Molex-5267
Molex-5267
FOR ITV
A12
A13
3844
470R
3845
470R
AudioOutL|Mono
AudioOutR
A14-35
A15-35
A14-62
A15-62
VlotAux+5V
5831
12u
5832
12u
2888
100u
2889
100n
A10 LEFT OUT
0.2V / div AC
0.2ms/div
A11 RIGHT OUT
0.2V / div AC
0.5ms / div
A12 AUDIO OUT L/MONO
0.5V / div AC
0.2ms / div
A13 AUDIO OUT R
0.5V / div AC
0.5ms / div
A14 SCL 7833
1V / div DC
10µs / div
A15 SDA 7833
1V / div DC
20µs / div
= 0V
CL 86532104_055.eps
020399

*	NICAM L	NICAM /2CS/ Multi-mono	BTSC DBX	mono STPB
2850	—	56P	180P	—
2857	—	—	—	1u
2859	56P	15P	15P	—
2887	—	220P	180P	—
2891	100P	27P	33P	—
3850	1K	2K2	2K2	—
4831	JMP	JMP	JMP	—
5833	—	12uH	12uH	—
7833	MSP3415	MSP3415	MSP3435	BSP3505

Note :- a. MSP3415D - NICAM, 2CS & Multi-Mono
b. MSP3430G - BTSC with DBX/SAP
c. BSP3501C - AV Stereo
d. TDA9851 - BTSC without DBX/SAP

0257	E9
0258	E10
0260	G3
1822	B8
2850	E2
2851	F4
2852	F4
2853	F3
2854	F3
2855	B8
2856	B8
2857	E4
2858	D4
2859	D4
2860	B6
2861	B6
2862	C4
2863	C4
2864	F3
2865	E3
2866	F3
2867	F3
2868	B5
2869	B5
2870	B6
2871	B4
2874	B7
2875	B7
2877	B5
2878	B5
2879	B5
2880	B5
2882	D9
2883	B6
2884	D9
2887	E3
2888	H4
2889	H4
2890	D3
2891	D2
3841	B7
3842	B7
3843	B6
3844	F9
3845	F9
3846	D3
3847	D3
3850	E3
3851	E3
3962	D10
3963	D10
4831	D3
5831	G5
5832	H5
5833	D3
6831	B7
7831	D3
7833	C4
9962	C10
9963	D10

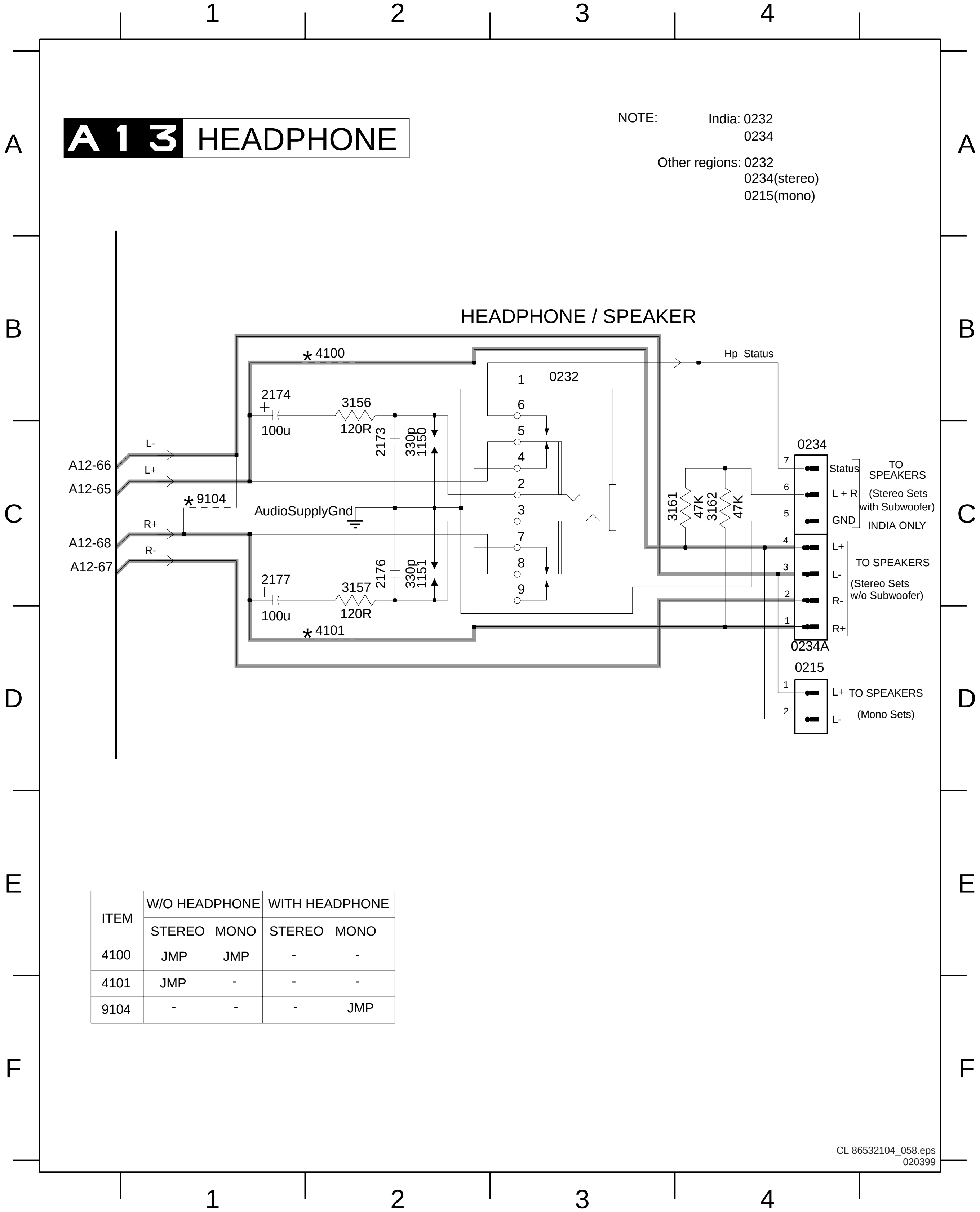

A12 AUDIO AMPLIFIER
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
AudioSupply
2960
2m2
AudioSupplyGnd
2951
RES
MainSupplyGnd
7950
16.7V
TDA7057AQ
Mono_Amp
2.4V
0.7V
2.4V
0.7V
IN1
VP
OUT1P
DCVOL1
OUT1M
IN2
OUT2M
DCVOL2
OUT2P
NC.2
8V
8V
8V
8V
L+
L-
R-
R+
A13-65
A13-66
A13-67
A13-68
2962
10p
2963
10p
MainSupplyGnd
AudioSupplyGnd
A11-63
MainAudioR
2952
1u
2953
RES
3956
1K5
4904
3957
4K7
3958
47K
2954
470n
2955
10n
FOR ITV
A7-5
Buzzer
3959
47K
A11-70
MainAudioL|Mono
2956
1u
2957
RES
3954
1K5
4905
3955
4K7
2958
470n
2959
10n
A7-2
P10Mute|Volume
Vaux
3950
680R
100u
2950
9965
6952
RES
6961
BAS216
3951
3K3
3952
100R
BAS216
6951
3953
6K8
2961
10u
AudioSupply
7951
TDA7053A
VP
A16
A17
A19
A18
STABILIZER
Vref
TEMPERATURE PROTECTION
NC
MainSupplyGnd
AudioSupplyGnd
9960
AudioSupply
7952
TDA7052B
NC1
STABILIZER
Vref
TEMPERATURE PROTECTION
MainSupplyGnd
AudioSupplyGnd
AudioSupply
7953
TDA7056B/N1
VP
STABILIZER
Vref
TEMPERATURE PROTECTION
NC
MainSupplyGnd
AudioSupplyGnd
A16 R+
0.2V / div AC
0.5ms / div
A17 R-
0.2V / div AC
0.5ms / div
A18 L+
0.2V / div AC
0.2ms / div
A19 L-
0.2V / div AC
0.2ms/div
= 0V

*	2 X 3W/5W	2 X 1W	1 X 1W	2 X 2W	/94 SubW
2960	2200u	220u	220u	2200u	2200u
3954	1K5	—	—	1K5	1K5
3956	1K5	—	—	—	1K5
4904	—	JMP	—	—	—
4905	—	JMP	JMP	—	—
7950	TDA7057AQ	—	—	—	TDA7057AQ
7951	—	TDA7053A	—	—	—
7952	—	—	TDA7052B	—	—
7953	—	—	—	TDA7056B	—

CL 86532104_057.eps
020399

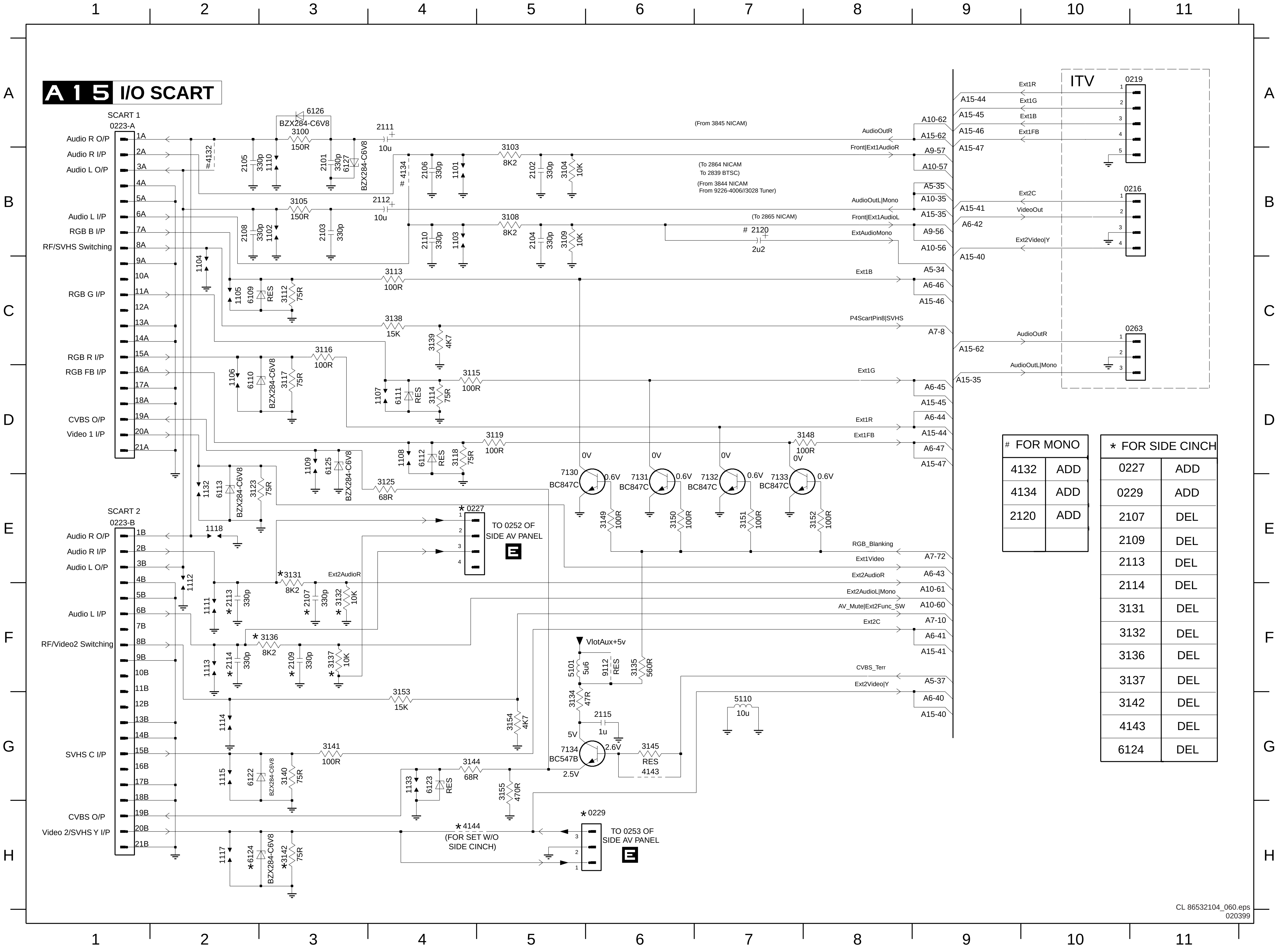
2950	D3
2951	A8
2952	B4
2953	B4
2954	B5
2955	B6
2956	C4
2957	C4
2958	C5
2959	C6
2960	A8
2961	D5
2962	B9
2963	B9
3950	D3
3951	D4
3952	D4
3953	D5
3954	C4
3955	C4
3956	B4
3957	B4
3958	B5
3959	C5
4904	B4
4905	C4
6951	D4
6952	D4
6961	D3
7950	A8
7951	C7
7952	E5
7953	E8
9960	E3
9965	D4

0215	D4
0232	B3
0234	C4
0234A	D4
1150	C2
1151	C2
2173	C2
2174	B1
2176	C2
2177	C1
3156	B2
3157	C2
3161	C4
3162	C4
4100	B2
4101	D2
9104	C1


1
2
3
4
A
B
C
D
E
F
A13 HEADPHONE
NOTE:
India: 0232
0234
Other regions: 0232
0234(stereo)
0215(mono)
HEADPHONE / SPEAKER
*4100
*4101
*9104
Hp_Status
0232
2174
100u
3156
120R
2173
330p
1150
2177
100u
3157
120R
2176
330p
1151
AudioSupplyGnd
A12-66
A12-65
A12-68
A12-67
L-
L+
R+
R-
1
6
5
4
2
3
7
8
9
3161
47K
3162
47K
0234
Status
L + R
GND
TO SPEAKERS
(Stereo Sets with Subwoofer)
INDIA ONLY
L+
L-
R-
R+
TO SPEAKERS
(Stereo Sets w/o Subwoofer)
0234A
0215
L+
L-
TO SPEAKERS
(Mono Sets)
CL 86532104_058.eps
020399

ITEM	W/O HEADPHONE		WITH HEADPHONE	
	STEREO	MONO	STEREO	MONO
4100	JMP	JMP	-	-
4101	JMP	-	-	-
9104	-	-	-	JMP

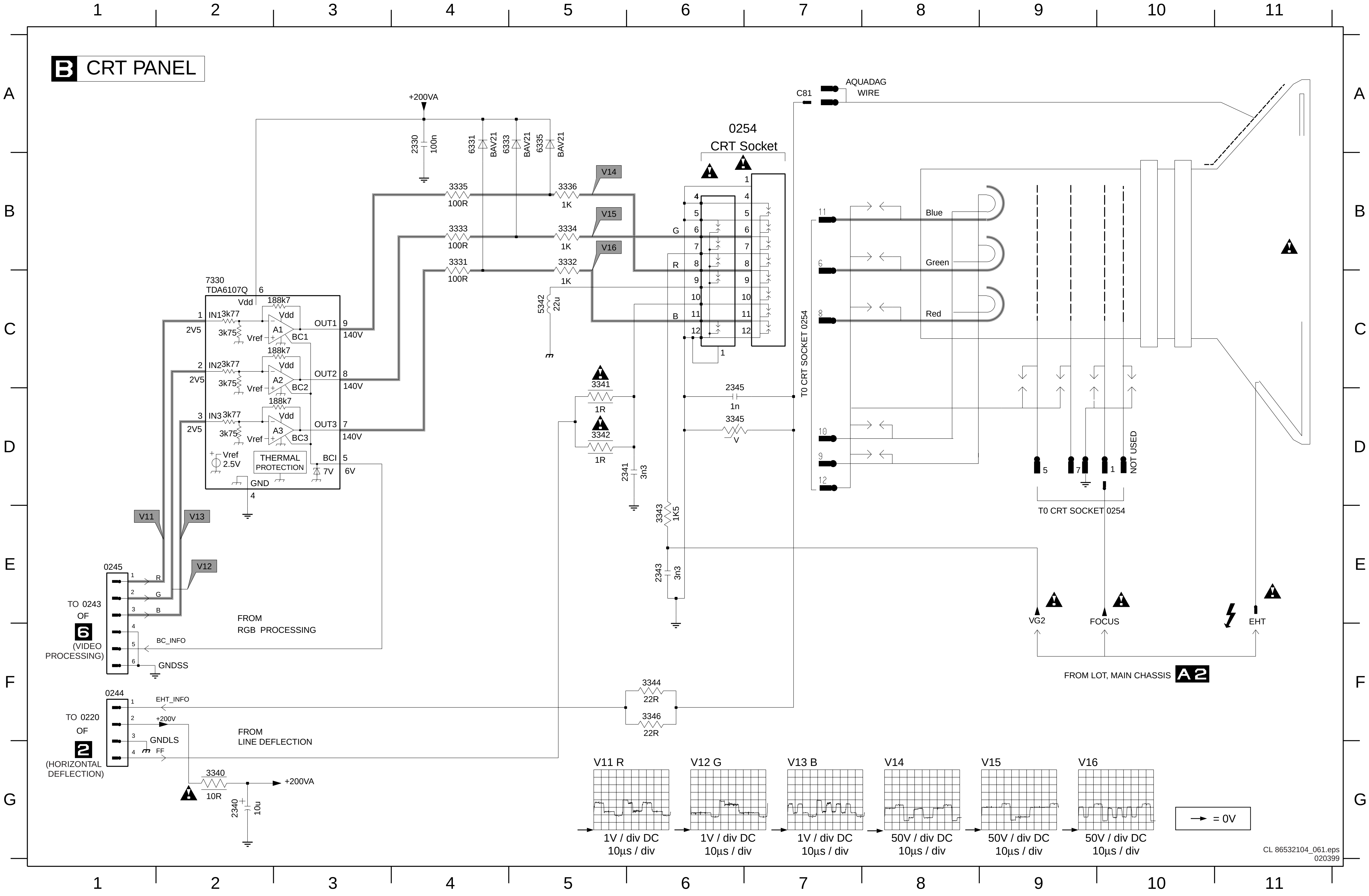
Personal notes:


A15 I/O SCART
SCART 1
0223-A
Audio R O/P
Audio R I/P
Audio L O/P
Audio L I/P
RGB B I/P
RF/SVHS Switching
RGB G I/P
RGB R I/P
RGB FB I/P
CVBS O/P
Video 1 I/P
SCART 2
0223-B
Audio R O/P
Audio R I/P
Audio L O/P
Audio L I/P
RF/Video2 Switching
SVHS C I/P
CVBS O/P
Video 2/SVHS Y I/P
ITV
0219
0216
0263
Ext1R
Ext1G
Ext1B
Ext1FB
Ext2C
VideoOut
Ext2Video|Y
AudioOutR
AudioOutL|Mono
(From 3845 NICAM)
(To 2864 NICAM To 2839 BTSC)
(From 3844 NICAM From 9226-4006//3028 Tuner)
(To 2865 NICAM)
Front|Ext1AudioR
AudioOutL|Mono
Front|Ext1AudioL
ExtAudioMono
P4ScartPin8|SVHS
RGB_Blanking
Ext1Video
Ext2AudioR
Ext2AudioL|Mono
AV_Mute|Ext2Func_SW
CVBS_Terr
A10-62
A15-62
A9-57
A10-57
A5-35
A10-35
A15-35
A9-56
A10-56
A5-34
A6-46
A15-46
A7-8
A6-45
A15-45
A6-44
A15-44
A6-47
A15-47
A7-72
A6-43
A10-61
A10-60
A7-10
A6-41
A15-41
A5-37
A6-40
A15-40
A6-42
TO 0252 OF SIDE AV PANEL
TO 0253 OF SIDE AV PANEL
(FOR SET W/O SIDE CINCH)
VlotAux+5v
7130 BC847C
7131 BC847C
7132 BC847C
7133 BC847C
7134 BC547B
CL 86532104_060.eps
020399

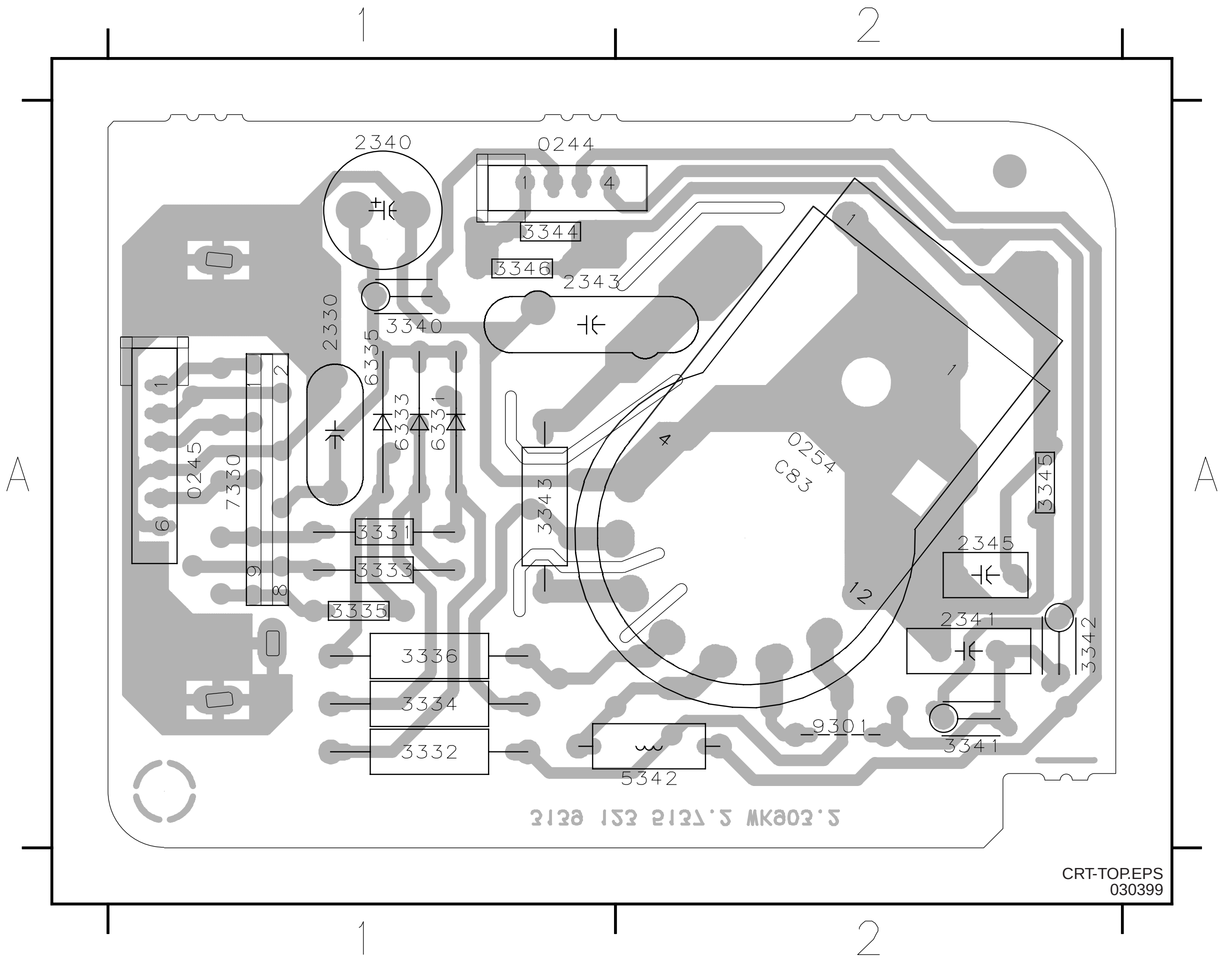
# FOR MONO	
4132	ADD
4134	ADD
2120	ADD

* FOR SIDE CINCH	
0227	ADD
0229	ADD
2107	DEL
2109	DEL
2113	DEL
2114	DEL
3131	DEL
3132	DEL
3136	DEL
3137	DEL
3142	DEL
4143	DEL
6124	DEL

0216	B10
0219	A10
0223-A	A1
0223-B	E1
0227	E4
0229	H6
0263	C10
1101	B4
1102	B3
1103	B4
1104	C2
1105	C2
1106	D2
1107	D4
1108	D4
1109	D3
1110	B3
1111	F2
1112	E2
1113	F2
1114	G2
1115	G2
1117	H2
1118	E2
1132	E2
1133	G4
2101	B3
2102	B5
2103	B3
2104	B5
2105	B2
2106	B4
2107	F3
2108	B2
2109	F3
2110	B4
2111	A4
2112	B4
2113	F2
2114	F2
2115	G6
2120	B7
3100	A3
3103	B5
3104	B5
3105	B3
3108	B5
3109	B5
3112	C3
3113	C4
3114	D4
3115	D4
3116	C3
3117	D3
3118	D4
3119	D5
3123	E2
3125	E4
3131	E3
3132	F3
3134	G5
3135	F6
3136	F3
3137	F3
3138	C4
3139	C4
3140	G3
3141	G3
3142	H3
3144	G4
3145	G6
3148	D8
3149	E6
3150	E6
3151	E7
3152	E8
3153	G4
3154	G5
3155	G5
4132	B2
4134	B4
4143	G6
4144	H4
5101	F5
5110	G7
6109	C2
6110	D2
6111	D4
6112	D4
6113	E2
6122	G2
6123	G4
6124	H2
6125	D3
6126	A3
6127	B3
7130	E5
7131	E6
7132	E7
7133	E7
7134	G5
9112	F6

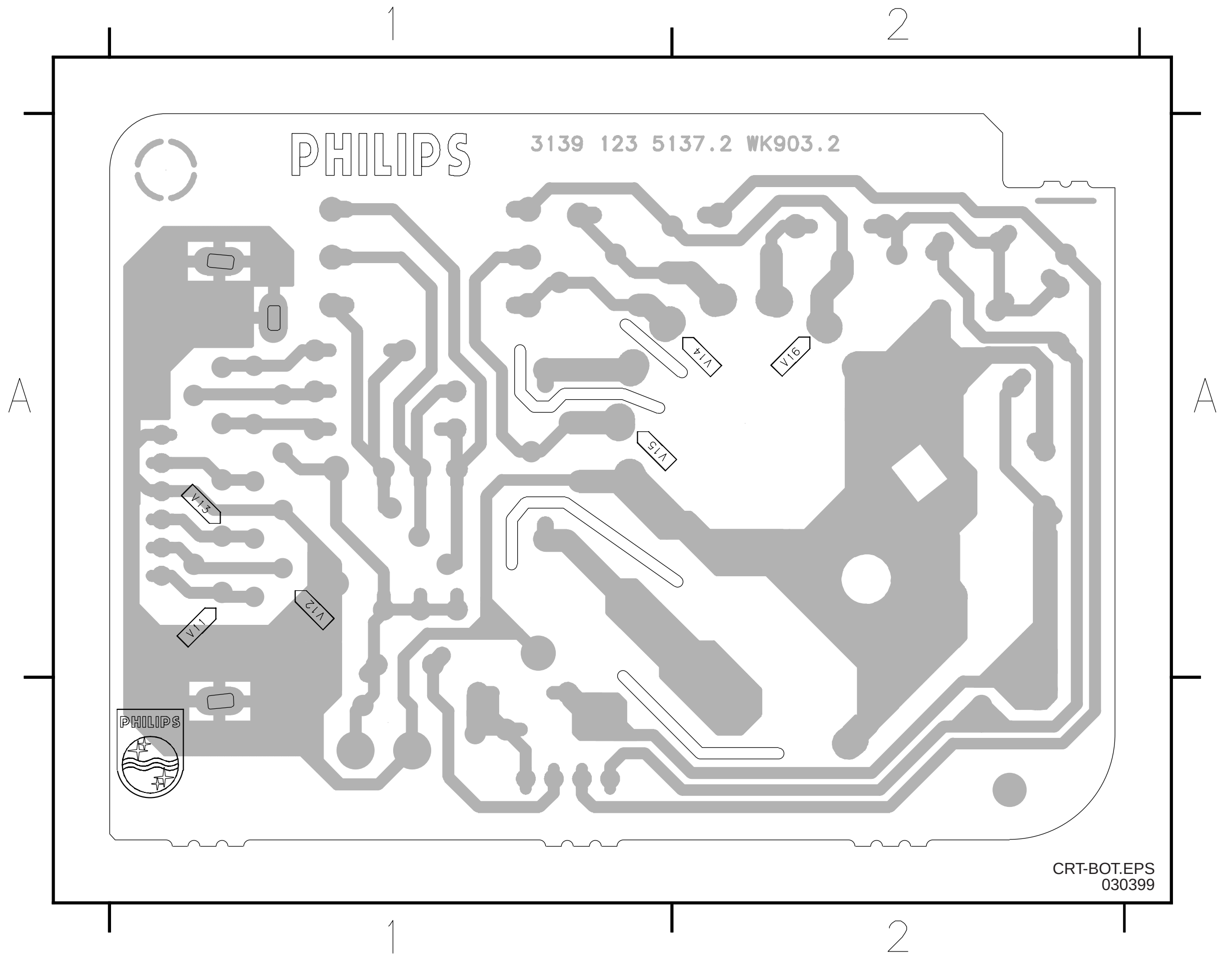

B CRT PANEL
+200VA
2330 100n
6331 BAV21
6333 BAV21
6335 BAV21
3335 100R
3333 100R
3331 100R
3336 1K
3334 1K
3332 1K
V14
V15
V16
5342 22u
7330 TDA6107Q
Vdd
IN1 IN2 IN3
3k77
3k75
188k7
A1 A2 A3
BC1 BC2 BC3
OUT1 OUT2 OUT3
140V
2V5
Vref 2.5V
THERMAL PROTECTION
BCI
7V
6V
GND
0254 CRT Socket
G R B
3341 1R
3342 1R
2341 3n3
2345 1n
3345 V
3343 1K5
2343 3n3
T0 CRT SOCKET 0254
Blue
Green
Red
AQUADAG WIRE
C81
NOT USED
VG2
FOCUS
EHT
FROM LOT, MAIN CHASSIS A2
0245
TO 0243 OF 6 (VIDEO PROCESSING)
R G B
BC_INFO
GNDSS
V11 V12 V13
FROM RGB PROCESSING
0244
TO 0220 OF 2 (HORIZONTAL DEFLECTION)
EHT_INFO
+200V
GNDLS
FF
FROM LINE DEFLECTION
3344 22R
3346 22R
3340 10R
2340 10u
+200VA
V11 R
V12 G
V13 B
V14
V15
V16
1V / div DC 10µs / div
1V / div DC 10µs / div
1V / div DC 10µs / div
50V / div DC 10µs / div
50V / div DC 10µs / div
50V / div DC 10µs / div
= 0V
CL 86532104_061.eps
020399

C81	A7
0244	F1
0245	E1
0254	A6
2330	A4
2340	G2
2341	D6
2343	E6
2345	D6
3331	B4
3332	B5
3333	B4
3334	B5
3335	B4
3336	B5
3340	G2
3341	C5
3342	D5
3343	E6
3344	F6
3345	D6
3346	F6
5342	C5
6331	A4
6333	A4
6335	A5
7330	C2


1
2
A
2340
0244
3344
3346
2343
2330
3340
6335
6333
6331
0245
7330
3343
0254
C83
3345
2345
2341
3342
3331
3333
3335
3336
3334
3332
5342
9301
3341
3139 123 5137.2 WK903.2

CRT-TOP.EPS
030399

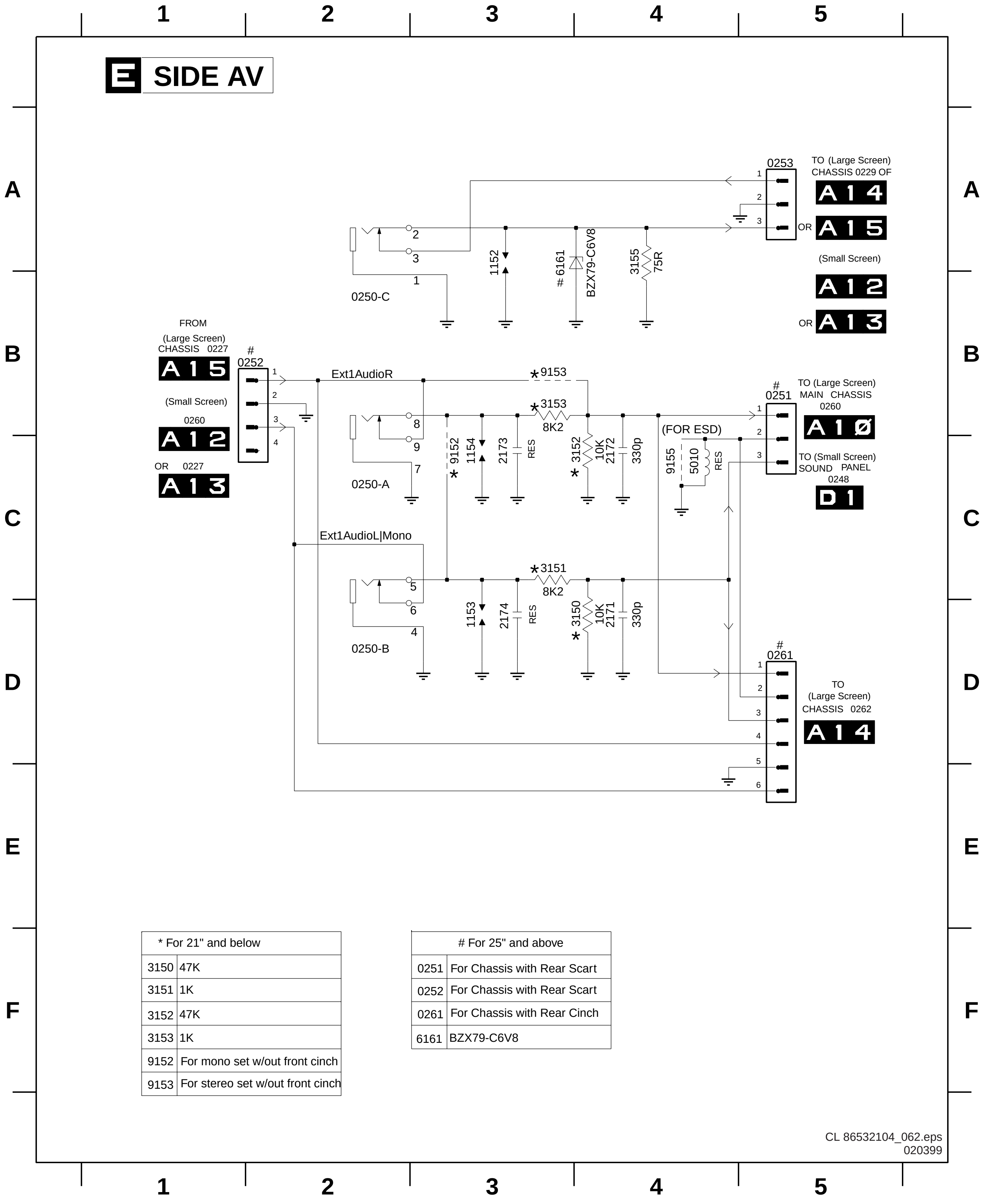
C83	A2
0244	A1
0245	A1
0254	A2
2330	A1
2340	A1
2341	A2
2343	A1
2345	A2
3331	A1
3332	A1
3333	A1
3334	A1
3335	A1
3336	A1
3340	A1
3341	A2
3342	A2
3343	A1
3344	A1
3345	A2
3346	A1
5342	A2
6331	A1
6333	A1
6335	A1
7330	A1
9301	A2


1
2
A
PHILIPS
3139 123 5137.2 WK903.2

CRT-BOT.EPS
030399

Personal notes:

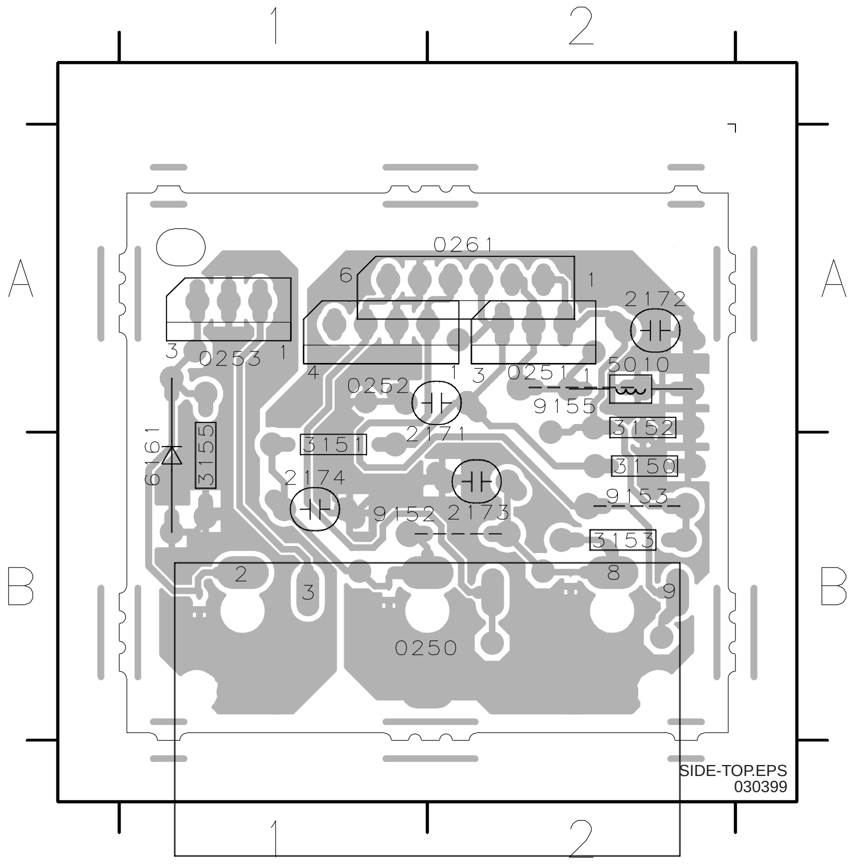
0250-A C2	**0250-C B2**	**0252 B2**	**0261 D5**	**1153 D3**	**2171 D4**	**2173 C3**	**3150 D4**	**3152 C4**	**3155 A4**	**6161 A3**	**9153 B3**
0250-B D2	**0251 B5**	**0253 A5**	**1152 A3**	**1154 C3**	**2172 C4**	**2174 D3**	**3151 C3**	**3153 B3**	**5010 C4**	**9152 C3**	**9155 C4**



1
2
3
4
5
A
B
C
D
E
F
E SIDE AV
0253
TO (Large Screen)
CHASSIS 0229 OF
A14
OR A15
(Small Screen)
A12
OR A13
0250-C
1
2
3
1152
# 6161
BZX79-C6V8
3155
75R
FROM
(Large Screen)
CHASSIS 0227
A15
(Small Screen)
0260
A12
OR 0227
A13
#
0252
1
2
3
4
Ext1AudioR
*9153
*3153
8K2
0250-A
8
9
7
*9152
1154
2173
RES
*3152
10K
2172
330p
(FOR ESD)
9155
5010
RES
#
0251
TO (Large Screen)
MAIN CHASSIS
0260
A10
TO (Small Screen)
SOUND PANEL
0248
D1
Ext1AudioL|Mono
*3151
8K2
0250-B
5
6
4
1153
2174
RES
*3150
10K
2171
330p
#
0261
1
2
3
4
5
6
TO
(Large Screen)
CHASSIS 0262
A14
CL 86532104_062.eps
020399

* For 21" and below	
3150	47K
3151	1K
3152	47K
3153	1K
9152	For mono set w/out front cinch
9153	For stereo set w/out front cinch

# For 25" and above	
0251	For Chassis with Rear Scart
0252	For Chassis with Rear Scart
0261	For Chassis with Rear Cinch
6161	BZX79-C6V8



1
2
A
B
0261
6
1
2172
3
0253
1
4
0252
3
0251
5010
9155
3152
3151
2171
6161
3155
2174
3150
9153
9152
2173
3153
2
3
8
9
0250
SIDE-TOP.EPS
030399

0250	B1
0251	A2
0252	A1
0253	A1
0261	A2
2171	B2
2172	A2
2173	B2
2174	B1
3150	B2
3151	B1
3152	A2
3153	B2
3155	B1
5010	A2
6161	B1
9152	B1
9153	B2
9155	A2

Colour Television **Chassis**

L9.1A

AA 00.01

Service
Service
Service

Service Information

(GB)

In the 21PT3942 the mono-carrier PCB-layout L91A is introduced to improve the audio power and 1 new panel is added : Side AV panel & Headphone (E1).
Entering the SDM has changed. By connecting pin 20 to ground at cold start.
Entering the SAM has changed. Shorting pin M28 and M29 is no longer valid.

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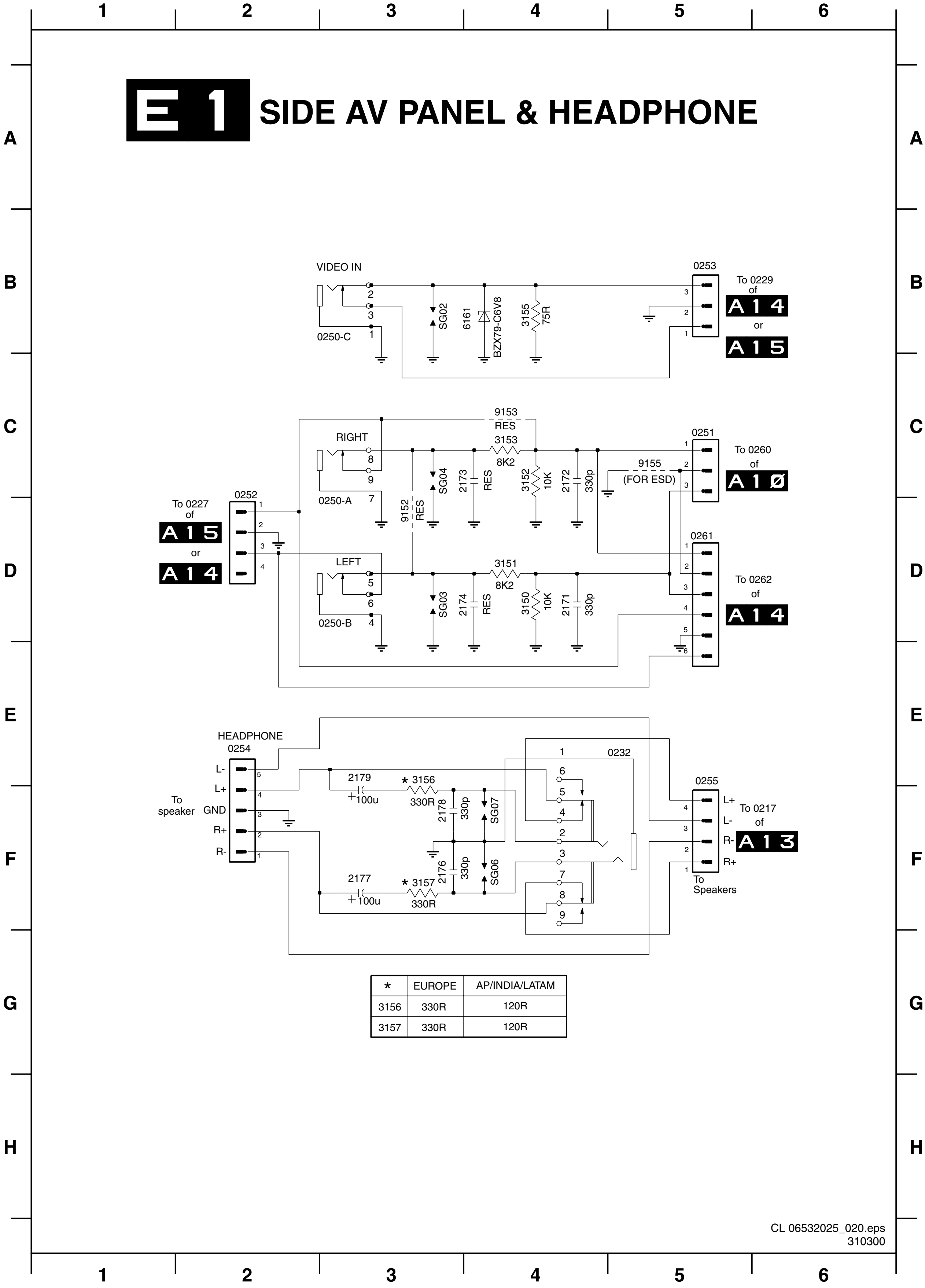
PHILIPS

Electrical diagram and PWB

Side AV panel & headphone


1
2
3
4
5
6
A
B
C
D
E
F
G
H
E 1 SIDE AV PANEL & HEADPHONE
VIDEO IN
0250-C
2
3
1
SG02
6161
BZX79-C6V8
3155
75R
0253
3
2
1
To 0229
of
A 1 4
or
A 1 5
9153
RES
3153
8K2
RIGHT
8
9
0250-A
7
SG04
2173
RES
3152
10K
2172
330p
9155
(FOR ESD)
0251
1
2
3
To 0260
of
A 1 Ø
To 0227
of
A 1 5
or
A 1 4
0252
1
2
3
4
9152
RES
LEFT
5
6
0250-B
4
SG03
2174
RES
3151
8K2
3150
10K
2171
330p
0261
1
2
3
4
5
6
To 0262
of
A 1 4
HEADPHONE
0254
L-
L+
GND
R+
R-
To
speaker
5
4
3
2
1
2179
100u
* 3156
330R
2178
330p
SG07
2177
100u
* 3157
330R
2176
330p
SG06
0232
1
6
5
4
2
3
7
8
9
0255
4
3
2
1
L+
L-
R-
R+
To 0217
of
A 1 3
To
Speakers

*	EUROPE	AP/INDIA/LATAM
3156	330R	120R
3157	330R	120R

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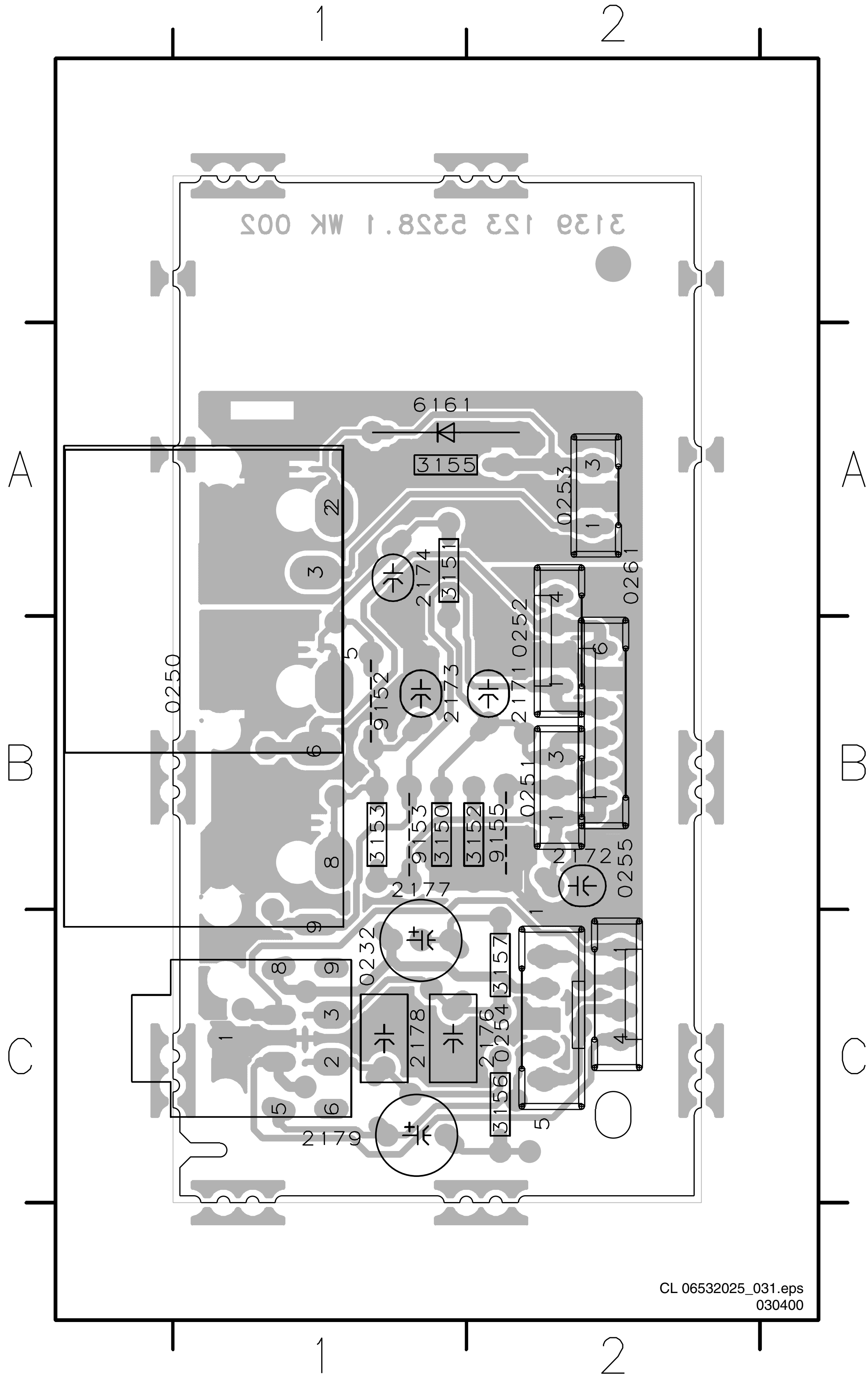
310300

0232	E4
0250-A	C3
0250-B	D3
0250-C	B3
0251	C5
0252	D2
0253	B5
0254	E2
0255	E5
0261	D5
2171	D4
2172	C4
2173	C4
2174	D4
2176	F3
2177	F3
2178	F3
2179	E3
3150	D4
3151	D4
3152	C4
3153	C4
3155	B4
3156	E3
3157	F3
6161	B3
9152	D3
9153	C4
9155	C5
SG02	B3
SG03	D3
SG04	C3
SG06	F4
SG07	F4

Side AV panel & headphone


1
2
A
B
C
3139 123 5328.1 WK 002
6161
3155
0253
3
1
2
3
2174
3151
0261
0252
4
6
1
5
0250
9152
2173
2171
6
3
0251
1
3153
9153
3150
3152
9155
8
2172
0255
2177
9
1
0232
3157
8
9
3
1
2
5
6
2178
2176
0254
3156
5
1
4
2179
1
2

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030400

0232	C1
0250	B1
0251	B2
0252	B2
0253	A2
0254	C2
0255	C2
0261	B2
2171	B2
2172	B2
2173	B1
2174	A1
2176	C1
2177	C1
2178	C1
2179	C1
3150	B1
3151	A1
3152	B2
3153	B1
3155	A1
3156	C2
3157	C2
6161	A1
9152	B1
9153	B1
9155	B2

Spare parts list

Side AV (E1)

Various

0021	3139 124 32391	Side AV bracket
0250	4822 265 11606	Cinch 3 AV
0253	4822 267 10735	Connector 3P
0261	2422 025 12482	Connector 6P

⊣⊢

2171	4822 126 13512	50V 330pF 5%
2172	4822 126 13512	50V 330pF 5%
2173	4822 126 13512	50V 330pF 5%
2174	4822 126 13512	50V 330pF 5%

▭

3150▲	4822 050 21003	10k 5% 0.1W
3151▲	4822 116 52303	8k2 5% 0.1W
3152▲	4822 050 21003	10k 5% 0.1W
3153▲	4822 116 52303	8k2 5% 0.1W
3155▲	4822 116 52201	75Ω 5% 0.1W

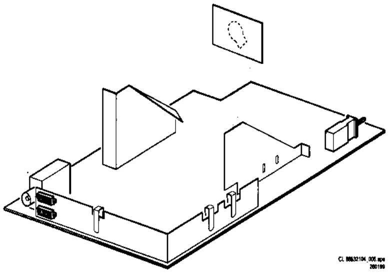
▶|

6161	4822 130 10852	BZX284-C6V8

Colour Television **Chassis**

L9.1E
AA

Service
Service
Service



Service Manual

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PHILIPS

1 Technical Specifications

Mains voltage : 90V - 276Vac; 50-60Hz

Maximum power consumption

- 25" : 75W +/- 10%
- 28" : 90W +/- 10%
- 29" : 90W +/- 10%

Standby power consumption : 6W +/- 10%
Colour Synchronisation :
Sub-carrier pull in range : +/- 300Hz
Horizontal Synchronisation :
Catching range : +/- 600 Hz
Holding range : +/- 1200 Hz
Vertical Lock Range : 49 Hz - 61Hz
Tuners : UV 1316/AI-2 (PAL/SECAM)

2 Connection facilities and chassis overview

2.1 Specification of the terminal sockets

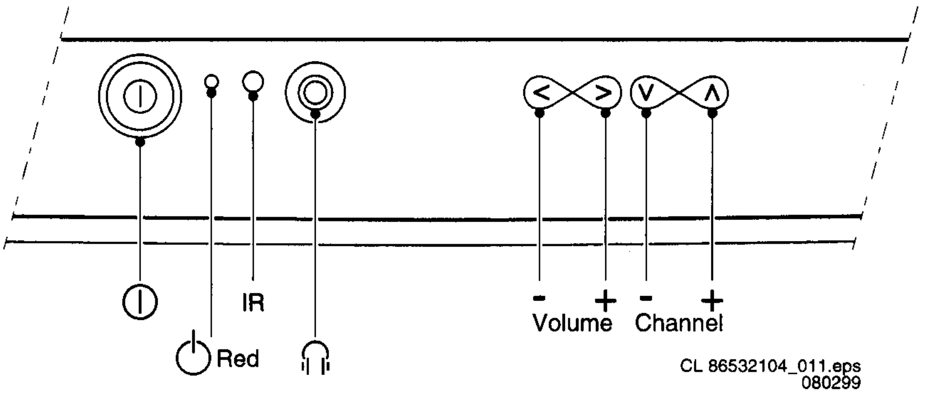

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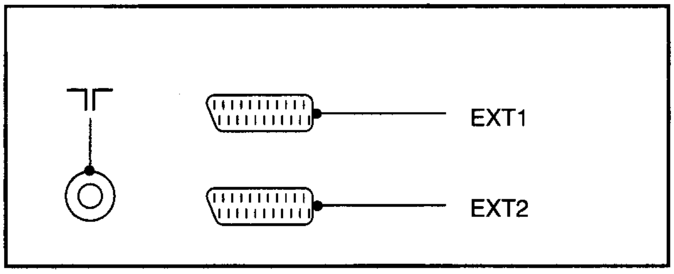
Figure 2-1



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080299

Figure 2-2

2.1.1 *Scart 1: CVBS(in/out) + RGB(in) - tuner at output*

1 -	Audio Out R (0.5Vrms <= 1kΩ)	○→
2 -	Audio In R (0.2-2Vrms >= 10kΩ)	→⊙
3 -	Audio Out L (0.5Vrms <= 1kΩ)	○→
4 -	Earth screen	⊥
5 -	Earth screen	⊥
6 -	Audio In L (0.2-2Vrms >= 10kΩ)	○→
7 -	Blue (0.7Vpp/75Ω)	○→
8 -	CVBS status (INT = 0-2V, EXT(16:9) = 4.5-7V, EXT(4:3) = 9.5-12V)	
9 -	Earth screen	⊥
10-	-	
11-	Green (0.7Vpp/75Ω)	→⊙
12-	-	
13-	Earth screen	⊥
14-	Earth screen	⊥
15-	Red (0.7Vpp/75Ω)	→⊙
16-	FBL (>0.9V RGB mode)	
17-	Earth screen	⊥
18-	Earth screen	⊥
19-	CVBS	○→
20-	CVBS (1Vpp/75Ω)	→⊙
21-	Earth screen	⊥

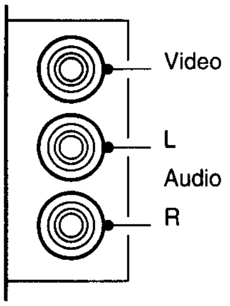
2.1.2 *Scart 2: CVBS (in/out) + SVHS(in)*

Input = EXT2 => output = tuner

Input = tuner/EXT1 => output = tuner/EXT1

1 -	Audio Out R (0.5Vrms <= 1kΩ)	○→
2 -	Audio In R (0.2-2Vrms >= 10kΩ)	→⊙
3 -	Audio Out L (0.5Vrms <= 1kΩ)	○→
4 -	Earth screen	⊥
5 -	Earth screen	⊥
6 -	Audio In L (0.2-2Vrms >= 10kΩ)	→⊙
7 -	-	
8 -	CVBS status (INT = 0-2V, EXT(16:9) = 4.5-7V, EXT(4:3) = 9.5-12V)	
9 -	Earth screen	⊥
10-	-	
11-	-	
12-	-	
13-	Earth screen	⊥
14-	Earth screen	⊥
15-	C (300mVpp/75Ω)	→⊙
16-	-	
17-	Earth screen	⊥
18-	Earth screen	⊥
19-	CVBS	○→
20-	CVBS/Y (1Vpp/75Ω)	→⊙
21-	Earth screen	⊥

2.1.3 *Cinch - audio/video in*



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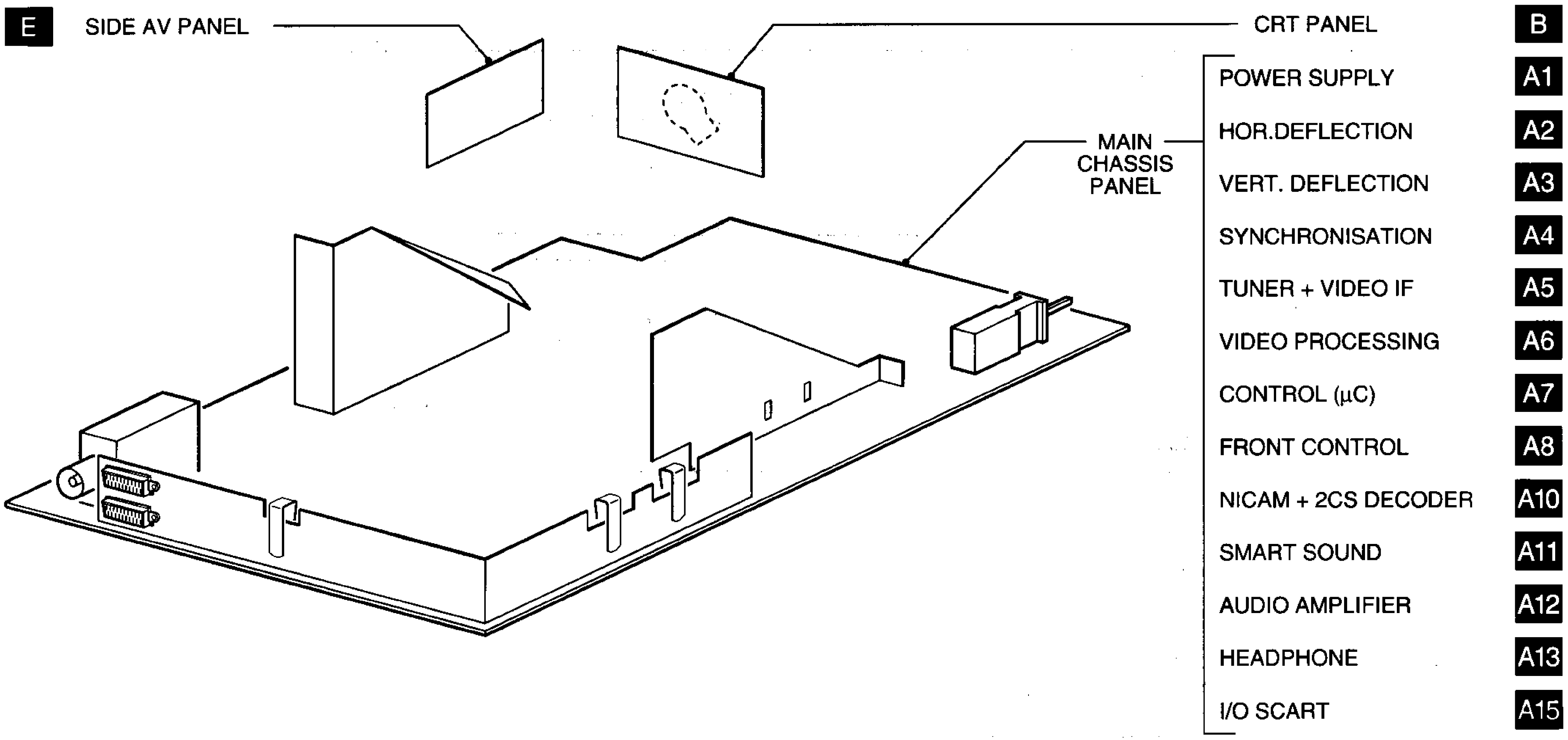
1 -	CVBS (yellow)(1Vpp 75Ω)	⊚
2 -	Audio L (red) (0.2-2Vrms 10kΩ)	⊚
3 -	Audio R (white) (0.2-2Vrms 10kΩ)	⊚

2.1.4 *Headphone*

1 -	8-600Ω (4mW)	🎧

2.2 PCB location drawing


E
SIDE AV PANEL
CRT PANEL
B
MAIN CHASSIS PANEL
POWER SUPPLY
A1
HOR.DEFLECTION
A2
VERT. DEFLECTION
A3
SYNCHRONISATION
A4
TUNER + VIDEO IF
A5
VIDEO PROCESSING
A6
CONTROL (µC)
A7
FRONT CONTROL
A8
NICAM + 2CS DECODER
A10
SMART SOUND
A11
AUDIO AMPLIFIER
A12
HEADPHONE
A13
I/O SCART
A15

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170299

3 Safety and maintenance instructions

3.1 Safety instructions for repairs

Figure 3-1

1. Safety regulations require that during a repair:
   - the set should be connected to the mains via an isolating transformer;
   - safety components, indicated by the symbol (see fig. 3.1), should be replaced by components identical to the original ones;
   - when replacing the CRT, safety goggles must be worn.

2. Safety regulations require that after a repair the set must be returned in its original condition. In particular attention should be paid to the following points.
   - As a strict precaution, we advise you to resolder the solder joints through which the horizontal deflection current is flowing, in particular:
     - all pins of the line output transformer (LOT);
     - fly-back capacitor(s);
     - S-correction capacitor(s);
     - line output transistor;
     - pins of the connector with wires to the deflection coil;
     - other components through which the deflection current flows.

     Note: This resoldering is advised to prevent bad connections due to metal fatigue in solder joints and is therefore only necessary for television sets older than 2 years. The wire trees and EHT cable should be routed correctly and fixed with the mounted cable clamps.

   - The insulation of the mains lead should be checked for external damage.
   - The mains lead strain relief should be checked for its function in order to avoid touching the CRT, hot components or heat sinks.
   - The electrical DC resistance between the mains plug and the secondary side should be checked (only for sets which have a mains isolated power supply). This check can be done as follows:
     - unplug the mains cord and connect a wire between the two pins of the mains plug;
     - set the mains switch to the on position (keep the mains cord unplugged!);
     - measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 MΩ and 12 MΩ;
     - switch off the TV and remove the wire between the two pins of the mains plug.

   - The cabinet should be checked for defects to avoid touching of any inner parts by the customer.

3.2 Maintenance instruction

It is recommended to have a maintenance inspection carried out by a qualified service employee. The interval depends on the usage conditions:

- When the set is used under normal circumstances, for example in a living room, the recommended interval is 3 to 5 years.
- When the set is used in circumstances with higher dust, grease or moisture levels, for example in a kitchen, the recommended interval is 1 year.
- The maintenance inspection contains the following actions:
  - Execute the above mentioned 'general repair instruction'.
  - Clean the power supply and deflection circuitry on the chassis.
  - Clean the picture tube panel and the neck of the picture tube.

3.3 Warnings

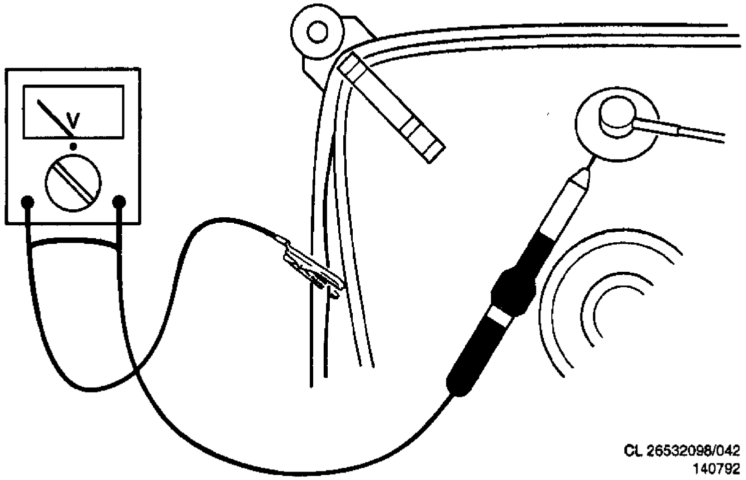
1. ESD
   All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
   - complete kit ESD3 small table mat, wristband, connectionbox, extensioncable and earthcable 4822 310 10671
   - wristband tester 4822 344 13999

2. In order to prevent damage to ICs and transistors, all high-voltage flashovers must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 3.2 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is 0V (after approx. 30s).
3. Together with the deflection unit and any multipole unit, the flat square picture tubes used from an integrated unit. The deflection and the multipole units are set optimally at the factory. Adjustment of this unit during repair is therefore not recommended.
4. Be careful during measurements in the high-voltage section and on the picture tube.
5. Never replace modules or other components while the unit is switched on.
6. When making settings, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.
7. Wear safety goggles during replacement of the picture tube

3.4 Notes

1. The direct voltages and oscillograms should be measured with regard to the tuner earth , or hot earth as this is called (see fig. 3.3)
2. The direct voltages and oscillograms shown in the diagrams are indicative and should be measured in the Service Default Mode (see chapter 8) with a colour bar signal and stereo sound (L:3 kHz, R:1 kHz unless stated otherwise) and picture carrier at 475.25 MHz.
3. Where necessary, the oscillograms and direct voltages are measured with and without aerial signal. Voltages in the power supply section are measured both for normal operation and in standby . These values are indicated by means of the appropriate symbols (see fig. 3.3).
4. The picture tube PWB has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
5. The semiconductors indicated in the circuit diagram and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

6. Manufactured under license from Dolby Laboratories Licensing Corporation.
7. DOLBY, the double D symbol and PRO LOGIC are trademarks of Dolby Laboratories Licensing Corporation.



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140792

Figure 3-2

⊥	tuner earth tuner aarde la masse du tuner Tuner-Erde massa del tuner tierra del sintonizador	⊥ϟ	hot earth hete aarde la terre directe heißen Erde massa calda tierra caliente
╥	with aerial signal met antenne signaal avec signal d'antenne mit Antennensignal con segnale d'antenna con la señal de antena	╳	without aerial signal zonder antenne signaal sans signal d'antenne ohne Antennensignal senza segnale d'antenna sin la señal de antena
⏼	normal condition normaal bedrijf fonctionnement normal normaler Betrieb funzionamento normale funcionamiento normal	⏻	stand by stand by position de veille in Bereitschaft modo di attesa posición de espera

Figure 3-3

4 Mechanical instructions

4.1 Service positions

See figure 4.1 for the service position.

1. Disconnect the connecting cable feeding the right-hand speaker, also disconnect the degaussing cable.
2. The mono-carrier is removed by pushing the two centre clips (1) at both chassis brackets outwards and pulling the panel forward. (2)
3. Flip the mono-carrier over so that the component side of the board faces towards the CRT.
4. Slide the metal heat sink underneath the left chassis bracket (3) until the carrier is locked in position.

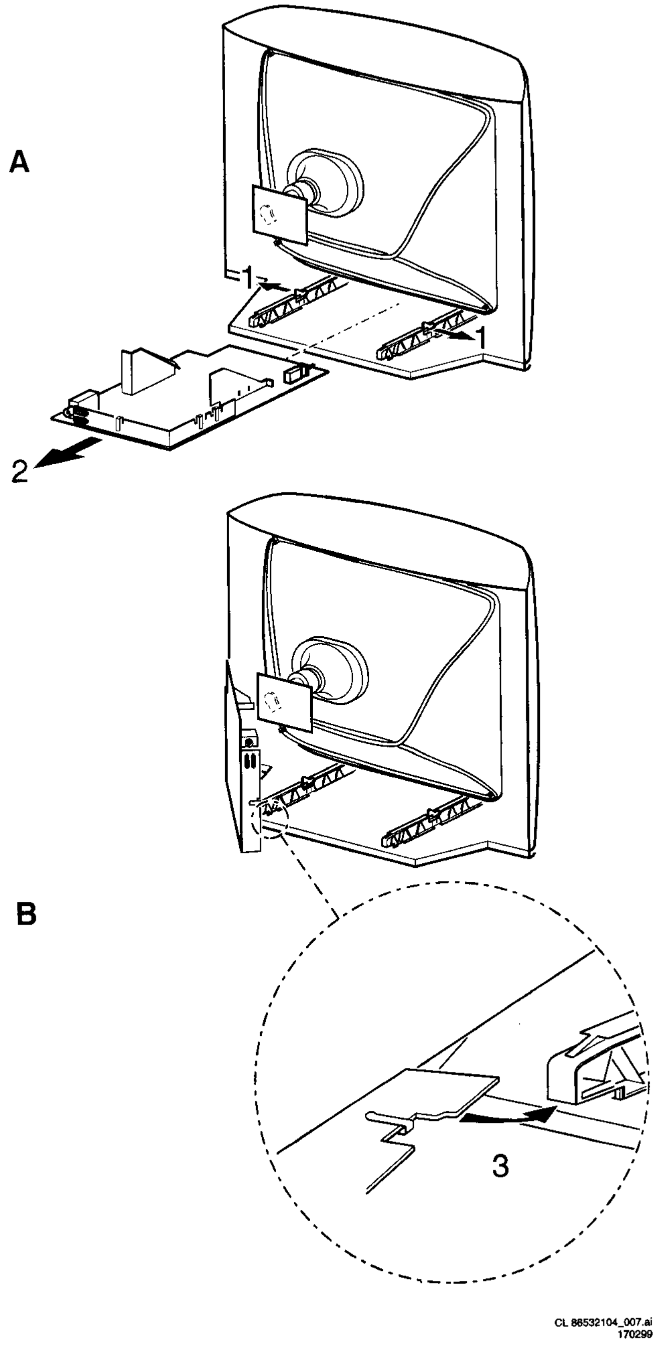


Figure 4-1

5 Fault finding and repair tips

This chapter includes information covering:

5.1 Test points
5.2 Service Modes and Dealer Service Tool (DST)
5.3 The menus and submenus
5.4 Error code buffer and error codes
5.5 The "blinking LED" procedure
5.6 Trouble shooting tips
5.7 Customer service mode
5.8 Compair
5.9 Ordering Compair

5.1 Test points

The L9.1E chassis is equipped with easily identifiable test points. These are clearly marked on the PCB. The test points refer to specific functional blocks, these are:

- A1-A2-A3, etc.: Test points for the Nicam + 2CS decoder / Audio amplifier
- C1-C2-C3, etc.: Test points for the control circuit / front control
- F1-F2-F3, etc.: Test points for the vertical deflection circuit
- I1-I2-I3, etc.: Test points for the intermediate frequency circuit
- L1-L2-L3, etc.: Test points for the horizontal deflection circuit
- P1-P2-P3, etc.: Test points for the power supply
- S1-S2-S3, etc.: Test points for the synchronisation circuit
- V1-V2-V3, etc.: Test points for the video processing circuitry / CRT panel

Measurements are performed under the following conditions:

Video: colour bar signal; audio: 3kHz left, 1kHz right

5.2 Service modes and Dealer Service Tool (DST)

For easy installation and diagnosis, the dealer service tool (DST) RC7150 can be used. When there is no picture (to access the error code buffer via the OSD). The DST can enable the set to display the entire contents of the error code buffers by using the flashing LED procedure.

Important Note: The L9.1E does not incorporate two way Infra red communication.

The part number for the DST (RC7150) is 4822 218 21232.

5.2.1 *Installation features for the dealer*

The dealer can use the RC7150 for programming the TV-set with presets. 10 Different program tables can be programmed into the DST via a GFL TV, MD or MG set (downloading from the TV to the DST; for example see the GFL service manuals) or by the DST-I (DST interface; part number 4822 218 21277). For an explanation of the installation features of the DST, please see the directions of use for use of the DST (for the L9.1E chassis, download code 4 should be used).

5.2.2 *Diagnosis features for the servicer*

L9.1E models can be put into either of the two available service modes by using the RC7150. These are the Service Default Mode (SDM) and the Service Alignment Mode (SAM).

5.2.3 *Service Default Mode (SDM)*

The purpose of the SDM is:

- Used to provide a pre defined situation (pre-defined parameters), so that the same measurements can be obtained as per the service manual.
- Overrides the 5V protection when the internal method of SDM is used (connecting together pin 24 and pin 25).
- starts the LED flashing procedure
- Setting up of options codes
- Inspect the error buffer

Entering the SDM:

- By transmitting the "DEFAULT" command with the RC7150 Dealer Service Tool (this works both while the set is in normal operation mode or in the SAM)
- Standard RC sequence 062596 followed by the key "MENU"
- By connecting test-points M25 and M24s together (on the mono-carrier) while switching on the set. After switching on the set the link should be removed (Caution!! By entering the SDM mode you Override the 5V protections).

Exit the SDM:

Switch the set to Standby or press EXIT on the DST (the error buffer is also cleared).

Note: When the mains power is switched off while the set is in SDM, the set will switch to SDM immediately when the mains is switched on again. (The error buffer will be cleared).

The SDM sets the following pre-defined conditions:

- Pal/Secam sets: tuning at 475.25 PAL (For France select the L'-signal)

Volume level is set to 25% (of the maximum volume level). Other picture and sound settings are set to 50%. The following functions are "ignored" in SDM since they interfere with diagnosing/repairing a set. "Ignoring" means that the event that is triggered is not executed, the setting remains unchanged.

- (Sleep)Timer
- Blue mute
- Auto switch off
- Hotel or Hospitality Mode
- Child lock or Parental lock
- Skipping, blanking of "Not favourite" present/channels
- Automatic storing of Personal Preset settings
- Automatic user menu time-out

All other controls operate normally.

5.2.4 *Special functions in SDM*

Access to normal user menu

Pressing the "MENU" button on the remote control will enter the normal user menu (TV lock, Installation, Brightness, colour and contrast) while "SMD" remains displayed in top of screen). Pressing the "MENU" key again will return to the last SDM status.

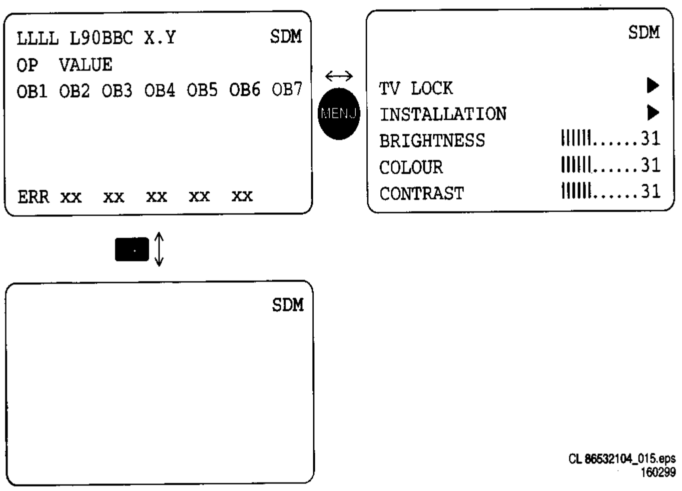
Error buffer

Pressing the "OSD" button of the remote control shows all OSD (incl. error buffer).

Access to SDM

By pressing the "CHANNEL DOWN" and "VOLUME DOWN" buttons on the local keyboard simultaneously the set switches from SDM to SAM or pressing "ALIGN" on the DST

In the SDM the following information is displayed on the screen:



```
LLLL L90BBC X.Y            SDM
OP  VALUE
OB1 OB2 OB3 OB4 OB5 OB6 OB7

ERR xx  xx  xx  xx  xx
```

```
                              SDM
TV LOCK                         ▶
INSTALLATION                    ▶
BRIGHTNESS        ||||||......31
COLOUR            ||||||......31
CONTRAST          ||||||......31
```

```
                           SDM
```

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Figure 5-1 : Service Default Mode screens and structure

Explanation notes/references:

(1) "LLLL" Operation hours timer (hexadecimal)

(2) Software identification of the main micro controller (L90BBC X.Y)

- L90 is the chassis name for L9.0E
- BBC is a 2 letter and 1 digit combination that indicates the software type and the supported languages:
- X = (main version number)
- Y = (subversion number) BB = (range specification)

(3) "SDM" To indicate that the TV set is in de service mode

(4) "OP" Options Code consist of 2 characters. It is possible to change each option code

"VALUE" The value of the selected option (ON/OFF or a combination of 2 letters)

"XXX" Value of the options bytes (OB1 .. OB7)

"ERR" The last five detected errors; The left most number indicates the most recent error detected.

The MENU UP or MENU DOWN command can be used to select the next/previous option; The MENU LEFT and MENU RIGHT command can be used to change the option value.

Remark: When the option-code RC = OFF, the P+ and the P- key have the same functions as the MENU UP/DOWN keys while the VOL+ and the VOL- key have the same function as the MENU LEFT/RIGHT keys. It is not possible to change the channel pre-set or to adjust the volume when in SAM/SDM menu when the option RC = OFF.

Using a L9.1E remote control, option-code RC = ON, the P+, P-, VOL- and VOL+ can be used to change the pre-set and/or to adapt the volume, while the menu-cursor keys are used to select the option and to change its value.

For an extended overview of the option codes see Chapter 8 - Options

5.2.5 *Service Alignment Mode (SAM)*

The SAM allows adjustment of the Demodulator I.F, align the white tone, adjust the picture geometry and sound adjustments.

For easy identification of the SAM mode, "SAM" is displayed in the top of the right side of the screen

Entering SAM:

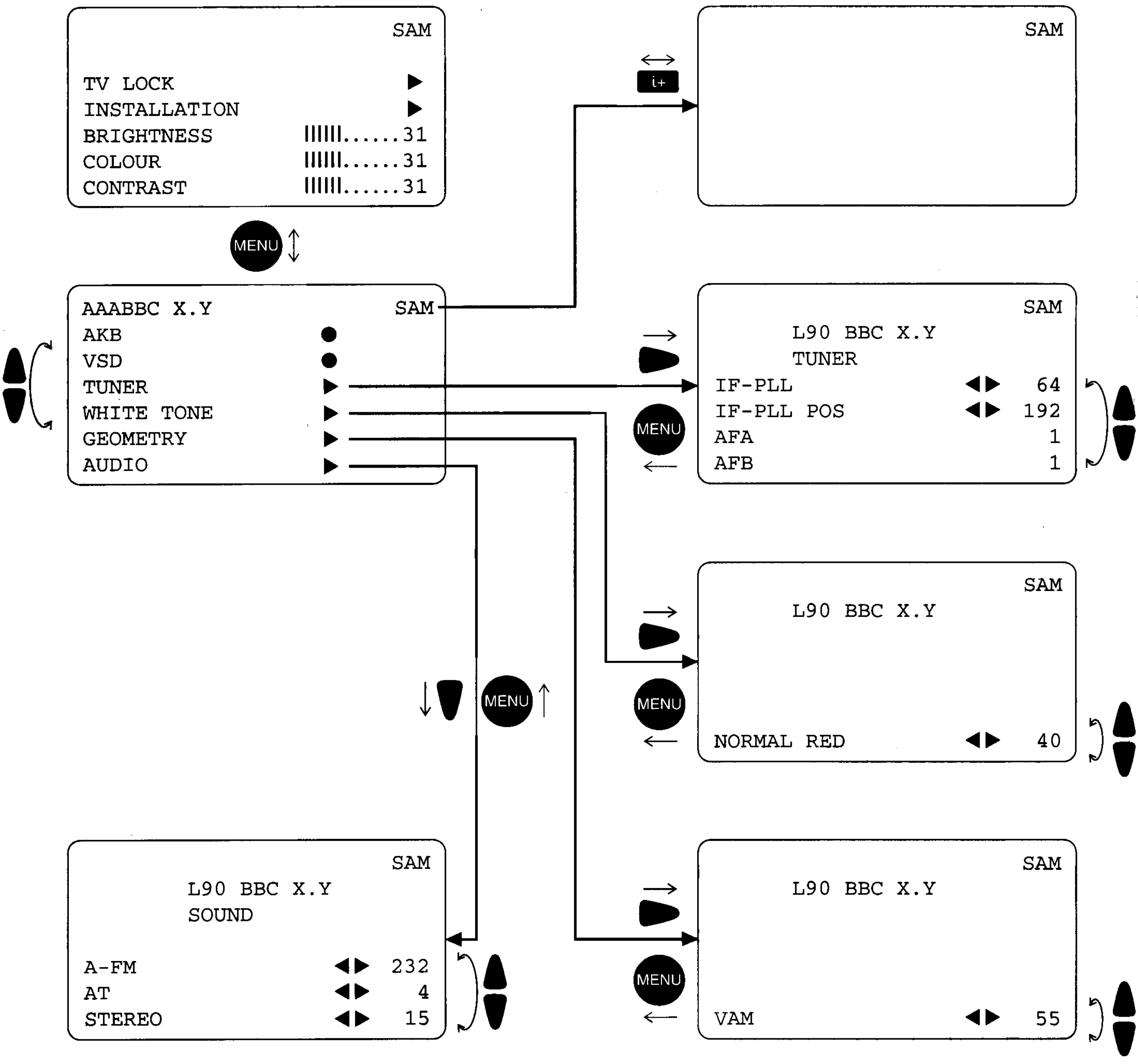
- By transmitting the "ALIGN" command with the RC7150 Dealer Service Tool
- By pressing the "CHANNEL DOWN" and "VOLUME DOWN" key on the local keyboard simultaneously when the set is in SDM
- Standard RC sequence 062596 followed by the key "OSD"
- By shorting test-point M28 and M29 on the mono-carrier while switching on the set. After switching on the set the short-circuit can be removed. (Caution!! Override of 5V protections).

Exiting the SAM:

Switch the set to standby or press EXIT on the DST (the error buffer is not cleared).

Note: When the mains power is switched off while the set is in SAM, the set will switch to SAM immediately when the mains is switched on again. (The error buffer will not be cleared).

In the SAM the following information is displayed on the screen:



SAM
TV LOCK ▶
INSTALLATION ▶
BRIGHTNESS ||||||......31
COLOUR ||||||......31
CONTRAST ||||||......31

AAABBC X.Y SAM
AKB ●
VSD ●
TUNER ▶
WHITE TONE ▶
GEOMETRY ▶
AUDIO ▶

SAM

SAM
L90 BBC X.Y
TUNER
IF-PLL ◀▶ 64
IF-PLL POS ◀▶ 192
AFA 1
AFB 1

SAM
L90 BBC X.Y
NORMAL RED ◀▶ 40

SAM
L90 BBC X.Y
SOUND
A-FM ◀▶ 232
AT ◀▶ 4
STEREO ◀▶ 15

SAM
L90 BBC X.Y
VAM ◀▶ 55

MENU
i+
MENU
MENU
MENU
MENU
MENU
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030399

Figure 5-2 : Service Alignment Mode screens and structure

Access to normal user menu
Pressing the "MENU" button on the remote control will enter the normal user menu (TV lock, installation, brightness, colour and contrast) while "SAM" remains displayed in top of screen. Pressing the "MENU" key again will return to the last SAM status.

Pressing the "OSD" button of the remote control shows only "SAM" in the top of screen

Access to SDM
Pressing the "DEFAULT" button on the DST

SAM menu control
Menu items (AKB, VSD, Tuner, White tone, Geometry and Sound) can be selected with the MENU Up or MENU DOWN key. Entry into the selected items (sub menus) is done by the MENU LEFT or MENU RIGHT key. The selected item will be highlighted.

With the cursor LEFT/RIGHT keys, it is possible to increase/ decease the value of the selected item.

5.3 The menus and submenus

5.3.1 Tuner sub menu

The tuner sub menu contains the following items:

- IF_PLL: PLL Alignment for all PAL/SECAM systems, excluding SECAM-LL'
- IF_PLL POS: PLL Alignment for SECAM-LL'
- IF_PLL OFFSET: Default value = 48 ; Do not align
- AFW: AFC Window
- AGC: AGC take-over point
- YD: Default value = 12 ; Do not align
- CL: Default value = 4 ; Do not align
- AFA
- AFB

The items AFA and AFB can not be selected, they are for monitoring purposes only.

The commands MENU UP and MENU DOWN are used to select the next/previous item.

The commands MENU LEFT and MENU RIGHT are used to increase/decrease the value of the selected item. The changed values will be send directly to the related hardware.

The item values are stored in NVM if this sub menu is left.

5.3.2 White tone sub menu

The white tone sub menu contains the following items:

- NORMAL RED
- NORMAL GREEN
- NORMAL BLUE
- DELTA COOL RED
- DELTA COOL GREEN
- DELTA COOL BLUE
- DELTA WARM RED
- DELTA WARM GREEN
- DELTA WARM BLUE

OSD is kept to a minimum in this menu, in order to make white tone alignment possible.

The commands MENU UP and MENU DOWN are used to select the next/previous item.

The commands MENU LEFT and MENU RIGHT are used to increase/decrease the value of the selected item. The changed values will be send directly to the related hardware.

The item values are stored in NVM if this sub menu is left.

The Contrast Plus feature (black stretch) is set to OFF when the white tone submenu is entered.

5.3.3 Audio sub menu

The audio sub menu contains the following items:

- A-FM: Default value = 232 ; Do not align
- AT: Default value = 4 ; Do not align
- STEREO: Default value = 15 ; Do not align
- DUAL: Default value = 12 ; Do not align

The sound adjustments sub menu are not available in Mono sets.

The presence of an item in the menu is dependent on the selected soundboard (option SB).

The commands MENU UP and MENU DOWN are used to select the next/previous item.

The commands MENU LEFT and MENU RIGHT are used to increase/decrease the value of the selected item. The changed values will be sent directly to the related hardware.

The item values are stored in NVM if this sub menu is left.

5.3.4 Geometry sub menu

The geometry sub menu contains the following items:

- SBL : Service blanking
- VSL : Vertical slope
- VAM : Vertical amplitude
- VSH : Vertical shift
- HSH : Horizontal shift
- VSC : Vertical S correction
- H60 : Default value = 10 ; Do not align
- V60 : Default value = 12 ; Do not align
- EWC : E-W corner
- EWT : E-W trapezium
- EWP : E-W parabola
- EWW : E-W width

5.4 Error code buffer and error codes

5.4.1 Error code buffer

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right.

- when an error occurs that is not yet in the error code buffer, the error is written at the left side and all other errors shift one position to the right
- the error code buffer will be cleared in the following cases:
  1. exiting SDM or SAM with the "Standby" command on the remote control
  2. transmitting the commands "EXIT" with the DST (RC7150)
  3. transmitting the commands "DIAGNOSE-9-9-OK" with the DST.

- By leaving SDM or SAM with the mains switch, the error buffer is not reset.

Examples:

ERROR: 0 0 0 0 0 : No errors detected

ERROR: 6 0 0 0 0 : Error code 6 is the last and only detected error

ERROR: 5 6 0 0 0 : Error code 6 was first detected and error code 5 is the last detected (newest) error

5.4.2 *Error codes*

In the case of non-intermittent faults, clear the error buffer before starting the repair to prevent "old" error codes being present. If possible check the entire contents of the error buffers. In some situations an error code is only the RESULT of another error code (and not the actual cause).

Note: a fault in the protection detection circuitry can also lead to a protection.

Error 0 = No error

Error 1 = X-ray (Only for USA sets)

Error 2 = High beam current protection and E/W Horizontal protection

High beam protection active; set is switched to protection; error code 2 is placed in the error buffer; the LED will blink 2 times (repeatedly).

As the name implies, the cause of this protection is a too high beam current (bright screen with flyback lines). Check whether the +200V supply to the CRT panel is present. If the voltage is present, the most likely cause is a fault on the CRT panel. Disconnect the CRT panel to determine the cause. If the +200V voltage is not present, check R3340 (CRT panel - B), R3485 and D6485 (Horizontal Deflection - A2)

EW protection:

If this protection is active, the causes could be one of the following;

- horizontal deflection coil 5445
- linearity coil 5457
- S-correction capacitor 2466/2468
- flyback capacitor 2465
- line output stage
- short circuit of:
- flyback diode 6460
- EW transformer (bridge coil) 5465/5470 or 5463/5471 (version dependent)
- S-correction capacitor 2457
- EW power-transistor 7460 or driver-transistor 7461

Error 3 = Vertical / Frame protection

There are no pulses detected at pin 47 of the main microprocessor 7600 (panel A7).

If this protection is active, the causes could be one of the following items;

- IC 7401 is faulty
- Open circuit of vertical deflection coil
- Vlotaux +11V not present and/or Vlotaux -11V not present
- Resistor 3409

Error 4 = Sound processor I2C error (MSP3415D)

Sound processor does not respond to the micro controller

Error 5 = Bimos start-up error (POR bit)

Bimos start-up register is corrupted or the I2C line to the Bimos is always low or no supply at pin 12 of the Bimos). This error is usually detected during start-up and hence will prevent the set from starting up.

Error 6 = Bimos (TDA8844) I2C error

Note that this error may also be reported as a result of error codes 4 (in that case the Bimos might not be the actual problem)

Error 7 = General I2C error. This will occur in the following cases:

- SCL or SDA is shorted to ground
- SCL is shorted to SDA
- SDA or SCL connection at the micro controller is open circuit.

Error 8 = Microprocessor internal RAM error

The micro controller internal RAM test indicated an error of the micro controller internal memory (tested during start-up);

Error 9 = EEPROM Configuration error (Checksum error); EEPROM is corrupted.

Error 10 = I2C error EEPROM error. NV memory (EEPROM) does not respond to the micro controller

Error 11 = I2C error PLL tuner. Tuner is corrupted or the I2C line to the Tuner is low or no supply voltage present at pin 9, pin 6 or pin 7 of the tuner.

Error 12 = Black current loop instability protection. The black current could not be stabilised. The possible cause could be a defect in one or more of the RGB amplifiers, RGB guns or RGB driving signals.

5.5 The "blinking LED" procedure

The contents of the error buffer can also be made visible via the "blinking LED" procedure. This is especially useful when there is no picture. There are two methods of access:

1. When the SDM is entered, the LED will blink the number of times, equal to the value of the last (newest) error code (repeatedly).
2. With the DST all error codes in the error buffer can be made visible. Transmit the command: "DIAGNOSE x OK" where x is the position in the error buffer to be made visible x ranges from 1, (the last (actual) error) to 6 (the first error). The LED will operate in the same way as in point 1, but now for the error code on position x.

Example:

Error code position1 2 3 4 5

Error buffer:8 9 5 0 0

- after entering SDM: blink (8x) - pause - blink (8x) - etc.
- after transmitting "DIAGNOSE- 2- OK" with the DST blink (9x) - pause - blink (9x) - etc.
- after transmitting "DIAGNOSE- 3- OK" with the DST blink(5x) - pause - blink(5x) - etc.
- after transmitting "DIAGNOSE- 4- OK" with the DST nothing happens

5.6 TROUBLE SHOOTING TIPS

In this paragraph some trouble shooting tips for the deflection and power supply circuitry are described. For detailed diagnostics, use the fault finding tree or use COMPAIR.

5.6.1 *THE DEFLECTION CIRCUIT:*

1. Check that the +VBATT (140V) is present across 2551 (A1 POWER SUPPLY). If the voltage is not present, disconnect coil 5551 (A1 Power Supply) (Horizontal deflection stage is disconnected). If the voltage is present then the fault might be caused by the deflection circuit. Possible Candidates Are:
   - Transistor 7460 is faulty
   - The driver circuit around transistor 7461 is faulty
   - No horizontal drive signal coming from the BIMOS 7250-D pin 40 (A4 - Synchronisation)

2. Note: If the Collector of 7460 is shorted to the Emitter, a tripping noise will be heard from the power supply circuit.
3. To determine whether the fault is present in the horizontal deflection circuit or in the E/W circuit (A2 - Horizontal Deflection), de-solder jumper 9465 and insert a jumper into position number 9461. This disables the E/W protection. If the basic deflection stage now works correctly (parabolic picture) then the fault is present in the E/W circuit. If there is still no horizontal deflection, then the fault is present in the basic deflection circuitry.
4. The 25V-version (26" tube) and the 27V-version (29" tube) do not have an E/W correction circuit.
5. Also don't forget the protection circuits in the line output stage. If any of these circuits are activated, the set will shut down. Depending on the protection, the led will blink according to the fault defined. In order to determine which protection circuit is active, isolation of each separate circuit is necessary. These protection circuits are:
   - High beam current protection (LED blinks repetitively 2 times) - CRT panel (B)
   - E/W Horizontal protection (LED blinks repetitively 2 times) - Horizontal deflection (A2)
   - Vertical protection (LED blinks repetitively 3 times) - Vertical deflection (A3)

5.6.2 *THE POWER SUPPLY*

To trouble shoot the L9.1E SMPS, first check the Vaux voltage on C2561. If this voltage is not present, check fuse F1572 and D6560. If F1572 or D6560 is not open circuit, the problem might be caused on the primary side of the switching supply. Check the output of the bridge rectifier on the C2508 for approximately 300V DC. If this voltage is missing, check the bridge rectifier 6505 and the fuse 1500. If fuse F1500 is found to be open circuit, check MOSFET 7518 to make sure that there is no short circuit present and check R3518. If the 300V DC is present on C2508, check for a start-up voltage of approx. 13V on pin 1 of IC7520. If no start-up voltage is present, check if R3510 is open; zener 6510 is a short-circuit. It is necessary to have a feedback signal from the hot primary side of switch mode transformer T5545 at pin 8 and pin 9 for the power supply to oscillate. If this start-up voltage is present on pin 1 of IC7520 and the supply is not oscillating, check R3529 and D6540.

Check for a drive signal at the gate of MOSFET 7518, square wave signal - P2. Check pin 3 of IC7520, R3525 and D6514

To determined whether OVP is active, check whether Vaux is present at C2561.

5.7 Customer Service Mode (CSM)

All L9.1E sets are equipped with the "Customer Service Mode" (CSM). CSM is a special service mode that can be activated and deactivated by the customer, following a request from the service technician/dealer perhaps during a telephone conversation to identify the status of the set. This CSM is a 'read only' mode, therefore modifications or changes while the set is in this mode are not possible.

Entering the Customer Service Mode. The Customer Service Mode can be switched on by pressing simultaneously the button (MUTE) on the remote control and any key on the control buttons (P+, P-, VOL +, VOL -) on the TV for at least 4 seconds.

When the CSM is activated:

- picture and sound settings are set to nominal levels
- "Service unfriendly modes" are ignored

Exit the Customer Service Mode.

The Customer Service Mode will switch off after:

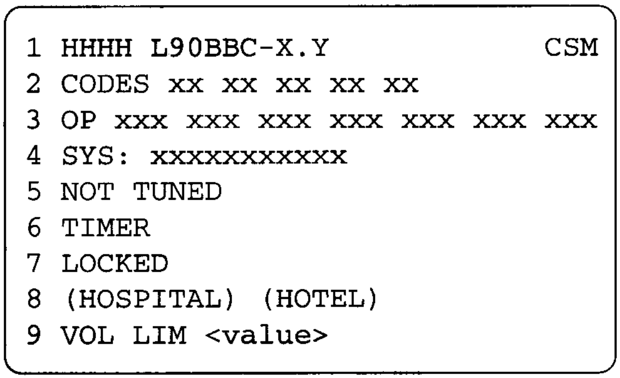
- pressing any key on the remote control handset (except "P+" or "P-")
- switching off the TV set with the mains switch.

All settings that were changed when CSM was activated are set back to the initial values

5.7.1 *The Customer Service Mode information screen*

The following information is displayed on screen:

- Line number for every line (to make CSM language independent)
- Operating hours
- Software version L90BBC X.Y)
- Text "CSM" on the first line
- Error buffer contents
- Option code information
- Configuration information
- Service unfriendly modes



```
1 HHHH L90BBC-X.Y            CSM
2 CODES xx xx xx xx xx
3 OP xxx xxx xxx xxx xxx xxx xxx
4 SYS: xxxxxxxxxxx
5 NOT TUNED
6 TIMER
7 LOCKED
8 (HOSPITAL) (HOTEL)
9 VOL LIM <value>
```

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Figure 5-3 : Screen lay-out Customer Service Mode

SYS: xxxxxx = xxxxxx is the SYSTEM THAT IS SET FOR THIS PRESET

NOT TUNED = no ident signal present

TIMER = (SLEEP) TIMER is activated

LOCKED = Channel/preset locked via parental lock, child lock

HOTEL = HOTEL mode activated; HOSPITAL = HOSPITAL mode activated

VOL LIM > = Volume limiter activated and set to >

5.7.2 *Exit*

Any key (RC or local keyboard) except "channel up" / "channel down" (standby switched to standby, mains OFF switches set off, other keys switch to normal operation)

5.8 Compair

5.8.1 *Introduction*

Compair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. Compair is a further development on the DST service remote control allowing faster and more accurate diagnostics. Compair has three big advantages:

- Compair helps you to quickly get an understanding how to repair the L9.1E in short time by guiding you step by step through the repair procedures.
- Compair allows very detailed diagnostics (on I2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I2C commands yourself; Compair takes care of this.
- Compair speeds up the repair time since it can automatically communicate with the L9.1E (when the micro processor is working) and all repair information is directly available. When Compair is installed together with the SearchMan L9.1E electronic manual, schematics and PCBs are only a mouse-click away.

Compair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The Compair interface box is connected to the PC via a serial or RS232 cable. In case of the L9.1E chassis, the Compair interface box and the L9.1E communicate via an I2C cable (bi-directional) and via infra red communication (uni-directional; from Compair interface box to L9.1E)

The Compair fault finding program is able to determine the problem of the defective television. Compair can gather diagnostic information in 2 ways:

1. Communication to the television (automatic)
2. Asking questions to you (manually)

Compair combines this information with the repair information in its database to find out how to repair the L9.1E.

Automatic information gathering
Reading out the error buffer, Compair can automatically read out the contents of the entire error buffer.

Diagnosis on I2C level. Compair can access the I2C bus of the television. Compair can send and receive I2C commands to the micro controller of the television. In this way it is possible for Compair to communicate (read and write) to devices on the I2C busses of the L9.1E.

Manual information gathering
Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extend. When this is not the case, Compair will guide you through the fault finding tree by asking you questions and showing you examples. You can answer by clicking on a link (e.g. text or an waveform pictures) that will bring you to the next step in the faultfinding process.

A question could be: Do you see snow? (Click on the correct answer)

YES / NO

An example can be: Measure testpoint I7 and click on the correct oscillogram you see on the oscilloscope

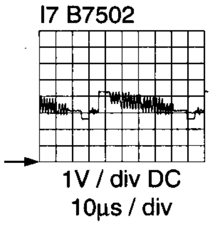

Figure 5-4

By a combination of automatic diagnostics and an interactive question/answer procedure, Compair will enable you to find most problems in a fast and effective way.

Additional features
Beside fault finding, Compair provides some additional features like:

- Uploading/downloading of presets
- Managing of preset lists
- Emulation of the Dealer Service Tool

5.8.2 *Connecting the Compair interface*

The Compair Browser software should be installed and setup before connecting Compair to the L9.1E. (See the Compair Browser Quick Reference Card for installation instructions.)

1. Connect the RS232 interface cable to a free serial (COMM) port on the PC and the Compair interface PC connector (connector marked with "PC").
2. Place the Compair interface box straight in front of the television with the infrared window (marked "IR") directed to the television LED. The distance between Compair interface and television should be between 0.3 and 0.6 meter. (Note: make sure that (also) in the service position, the Compair interface infra red window is pointed to the standby LED of the television set (no objects should block the infra red beam)
3. Connect the mains adapter to the connector marked "POWER 9V DC" on the Compair interface
4. Switch the Compair interface OFF
5. Switch the television set OFF with the mains switch
6. Remove the rear cover of the television set
7. Connect the interface cable (4822 727 21641) to the connector on the rear side of the Compair interface that is marked "I2C" (See Figure 5.6)
8. Connect the other end of the interface cable to the Compair connector on the monocarrier (see figure 5.7)
9. Plug the mains adapter in the mains outlet and switch ON the interface. The green and red LEDs light up together. The red LED extinguishes after approx. 1 second (the green LED remains lit).
10. Start-up Compair and select "File" menu, "Open...:; select "L9.1E Fault finding" and click "OK"
11. Click on the icon (fig. 5.5) to switch ON the communication mode (the red LED on the Compair interface wil light up)
12. Switch on the television set with the mains switch
13. When the set is in standby. Click on "Start-up in Compair mode from standby" in the Compair L9.1E fault finding tree, otherwise continue.

Figure 5-5

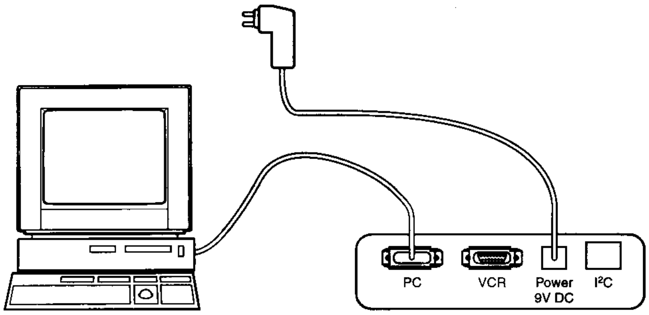

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Figure 5-6

The set has now started up in Compair mode. Follow the instruction in the L9.1E fault finding tree to diagnose the set. Note that the OSD works but that the actual user control is disabled

5.8.3 *Preset installation*

Presets can be installed in 2 ways with the L9.1E.

- Via infra red
  - only sending TO the television
  - the rearcover does NOT have to be removed

Click on "File" "Open" and select "TV - use Compair as DST" to use infra red

- Via cable
  - sending TO the television and reading FROM the television
  - the rearcover has to be removed

Click on "File" "Open" and select "L9.1E fault finding" to use the cable

Presets can be installed via menu "Tools", "Installation", "Presets".

5.9 Ordering Compair

Compair order codes:

- Starterkit Compair+SearchMan software + Compair interface (excluding transformer): 4822 727 21629
- Compair interface (excluding transformer): 4822 727 21631
- Compair transformer (continental) Europe: 4822 727 21632
- Compair transformer United Kingdom: 4822 727 21633
- Starterkit Compair software: 4822 727 21634
- Starterkit SearchMan software: 4822 727 21635
- Starterkit Compair+SearchMan software: 4822 727 21636
- Compair CD (update): 4822 727 21637
- SearchMan CD (update): 4822 727 21638
- Compair interface cable (for L9.1E): 4822 727 21641

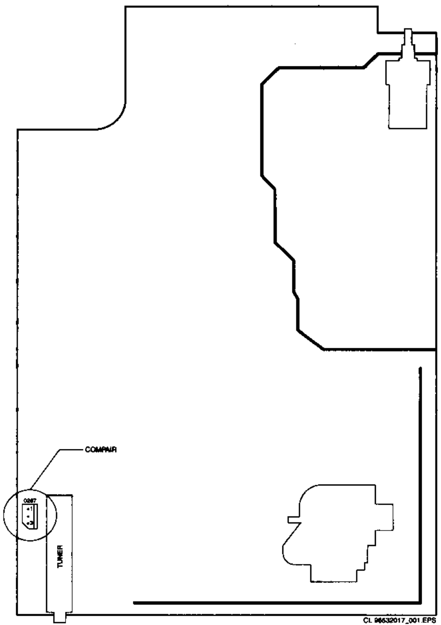

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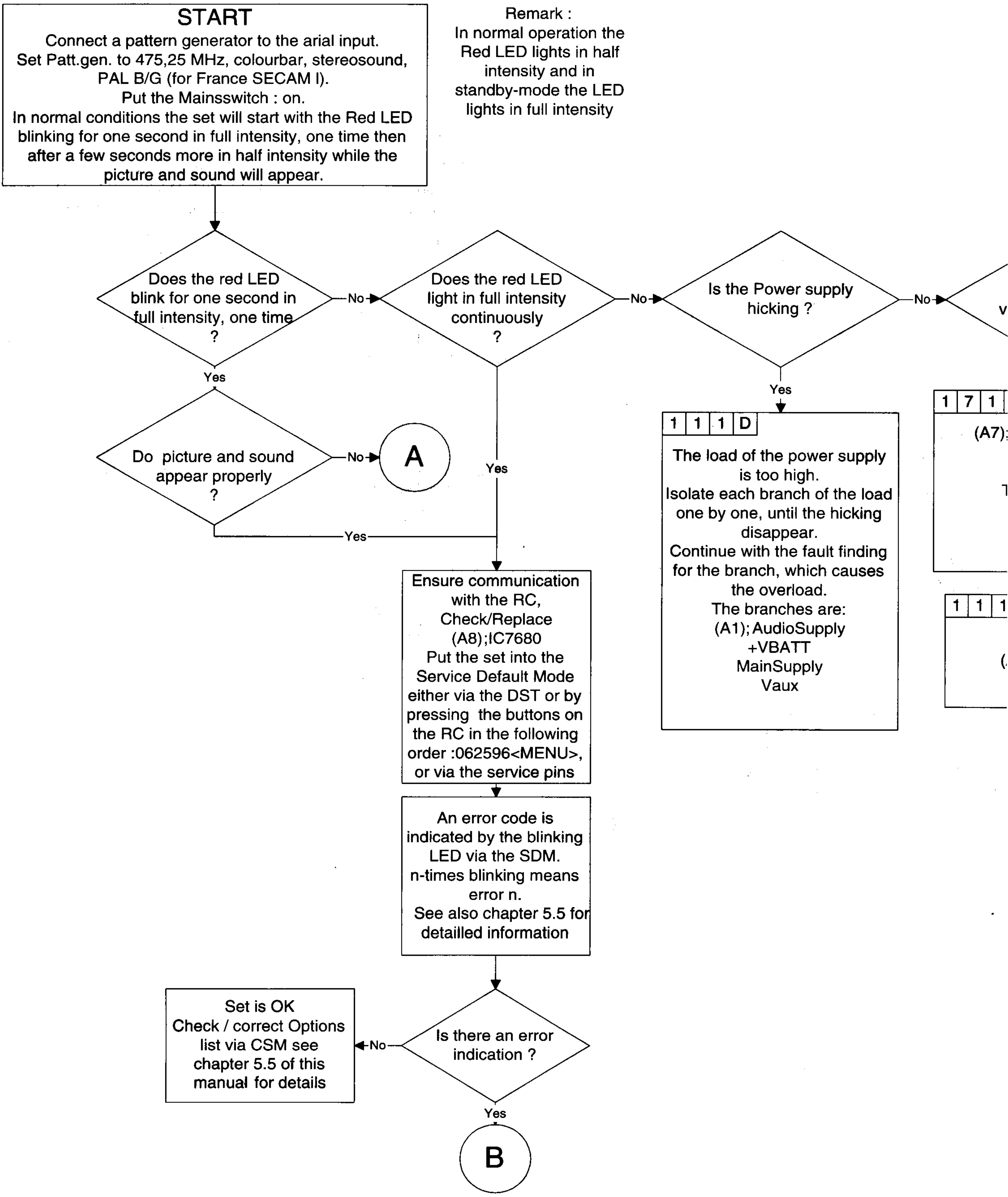
Figure 5-7



START

Connect a pattern generator to the arial input.
Set Patt.gen. to 475,25 MHz, colourbar, stereosound, PAL B/G (for France SECAM I).
Put the Mainsswitch : on.
In normal conditions the set will start with the Red LED blinking for one second in full intensity, one time then after a few seconds more in half intensity while the picture and sound will appear.

Remark :
In normal operation the Red LED lights in half intensity and in standby-mode the LED lights in full intensity

Does the red LED blink for one second in full intensity, one time ?

Do picture and sound appear properly ?

Does the red LED light in full intensity continuously ?

Is the Power supply hicking ?

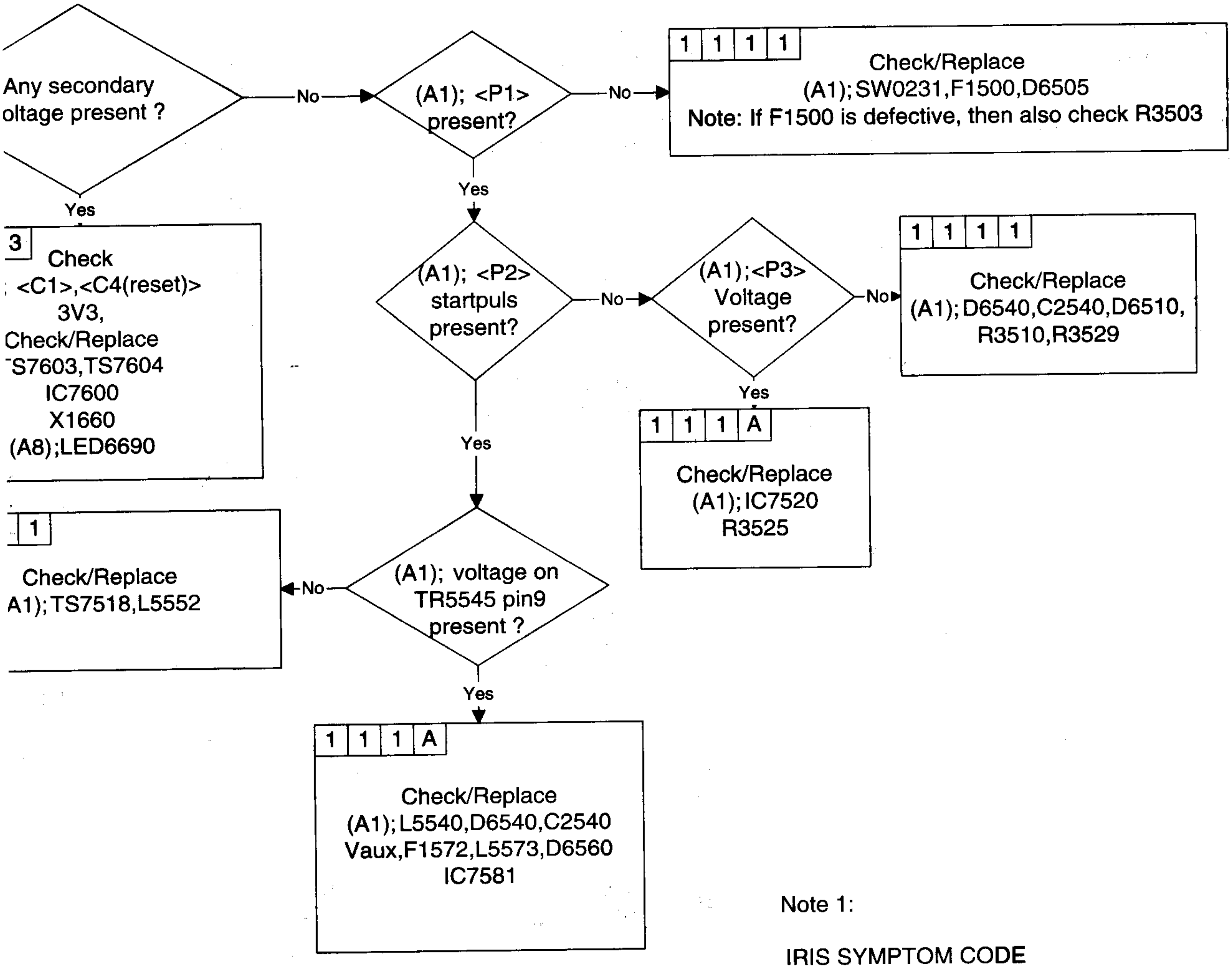
1 1 1 D
The load of the power supply is too high.
Isolate each branch of the load one by one, until the hicking disappear.
Continue with the fault finding for the branch, which causes the overload.
The branches are:
(A1); AudioSupply
+VBATT
MainSupply
Vaux

Ensure communication with the RC, Check/Replace (A8);IC7680
Put the set into the Service Default Mode either via the DST or by pressing the buttons on the RC in the following order :062596<MENU>, or via the service pins

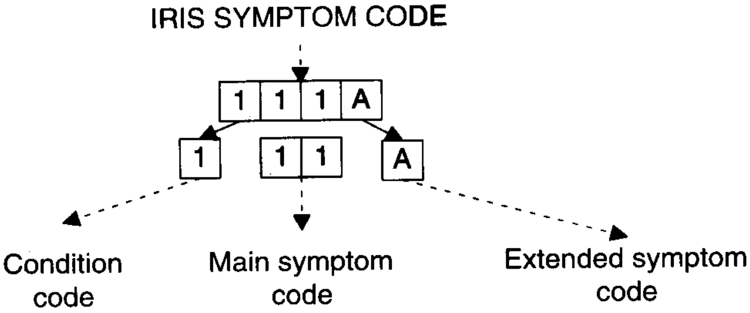
An error code is indicated by the blinking LED via the SDM.
n-times blinking means error n.
See also chapter 5.5 for detailled information

Is there an error indication ?

Set is OK
Check / correct Options list via CSM see chapter 5.5 of this manual for details


Any secondary
oltage present ?
No
(A1); <P1>
present?
No
1 1 1 1
Check/Replace
(A1);SW0231,F1500,D6505
Note: If F1500 is defective, then also check R3503
Yes
Yes
3
Check
; <C1>,<C4(reset)>
3V3,
Check/Replace
S7603,TS7604
IC7600
X1660
(A8);LED6690
(A1); <P2>
startpuls
present?
No
(A1);<P3>
Voltage
present?
No
1 1 1 1
Check/Replace
(A1);D6540,C2540,D6510,
R3510,R3529
Yes
1 1 1 A
Check/Replace
(A1);IC7520
R3525
Yes
1
Check/Replace
A1);TS7518,L5552
No
(A1); voltage on
TR5545 pin9
present ?
Yes
1 1 1 A
Check/Replace
(A1);L5540,D6540,C2540
Vaux,F1572,L5573,D6560
IC7581

Note 1:


IRIS SYMPTOM CODE
1 1 1 A
1
1 1
A
Condition
code
Main symptom
code
Extended symptom
code

Note 2:

(A1) means Drawing A1
<P1> means Test point P1

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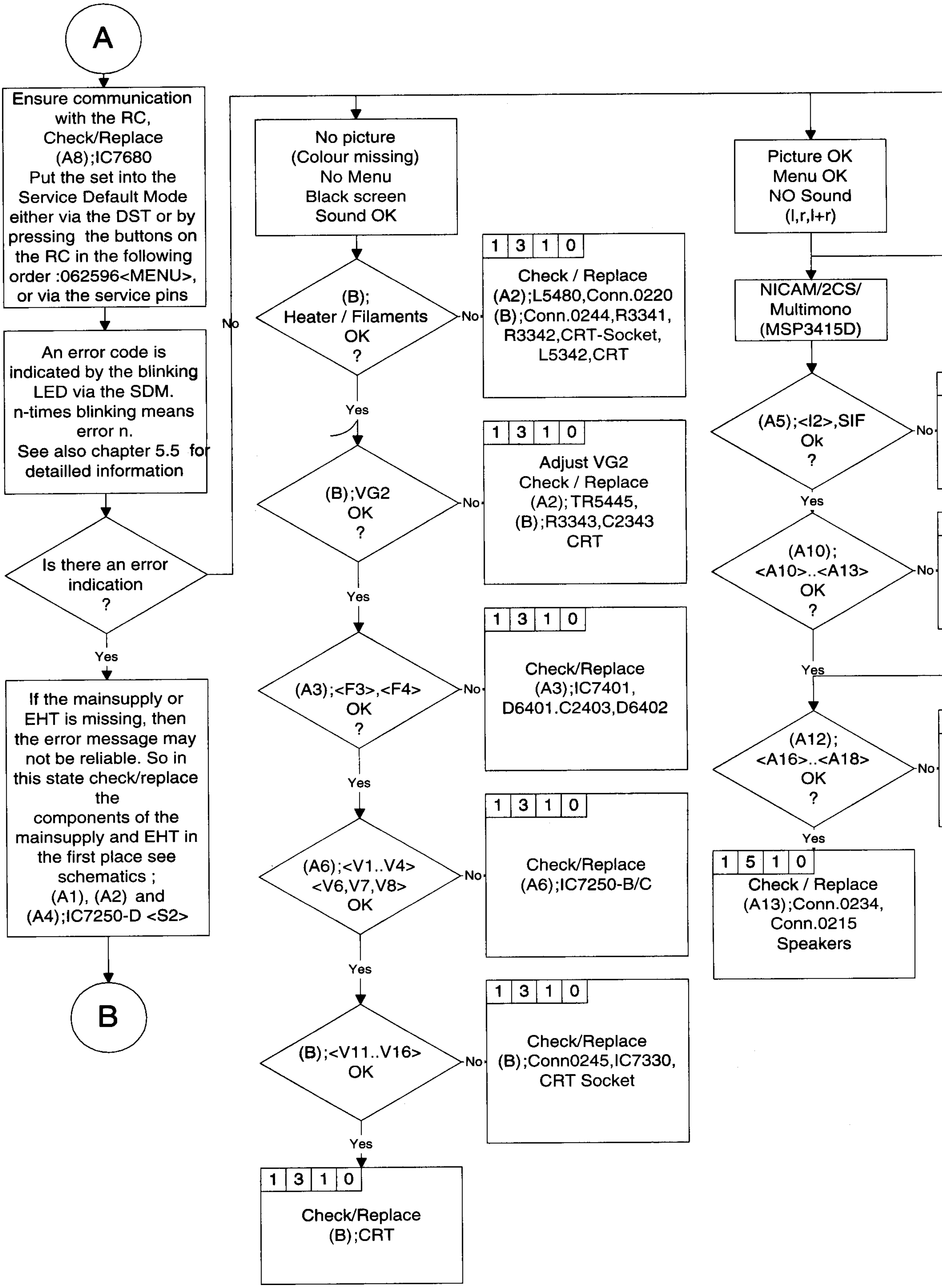
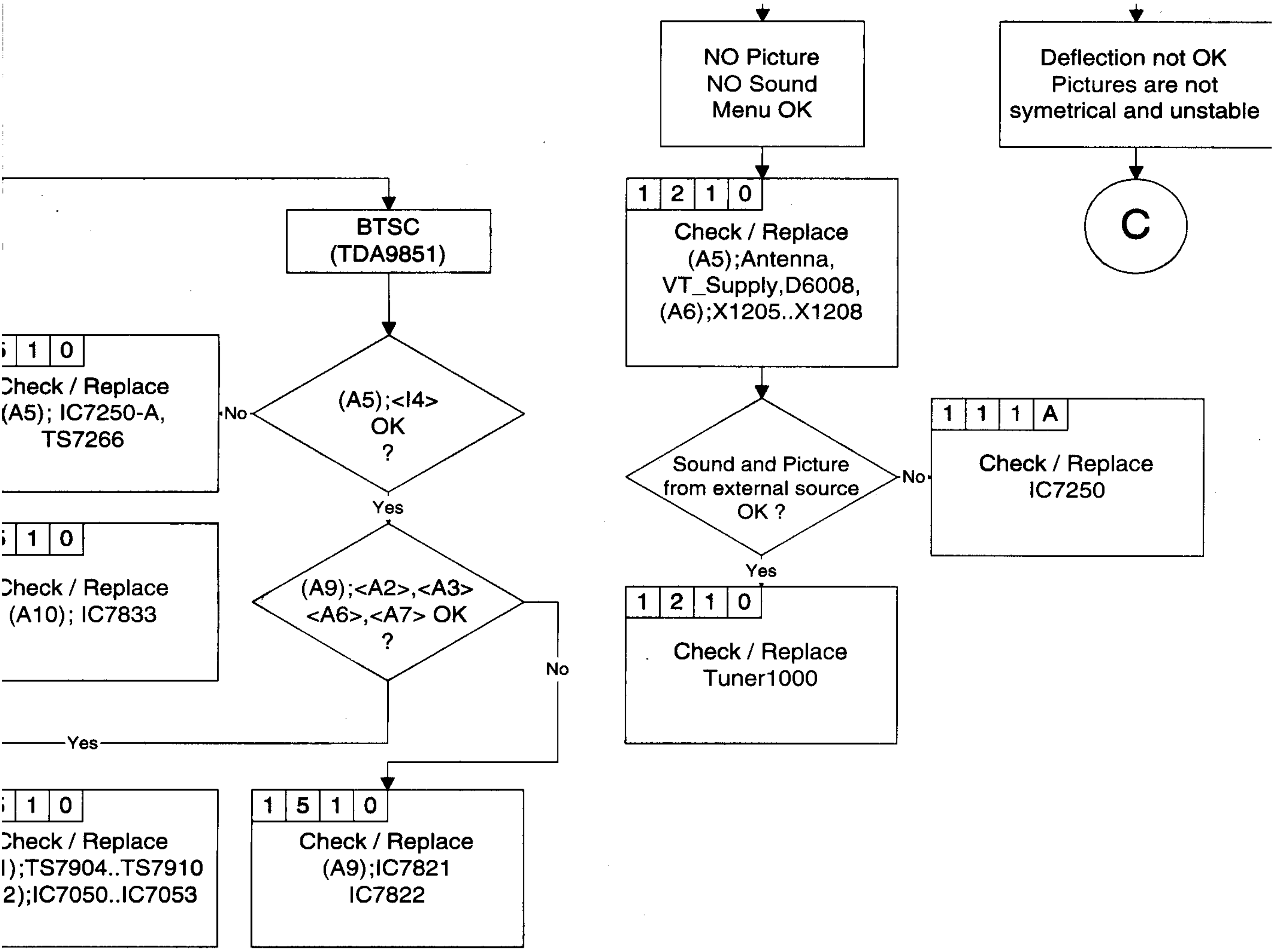
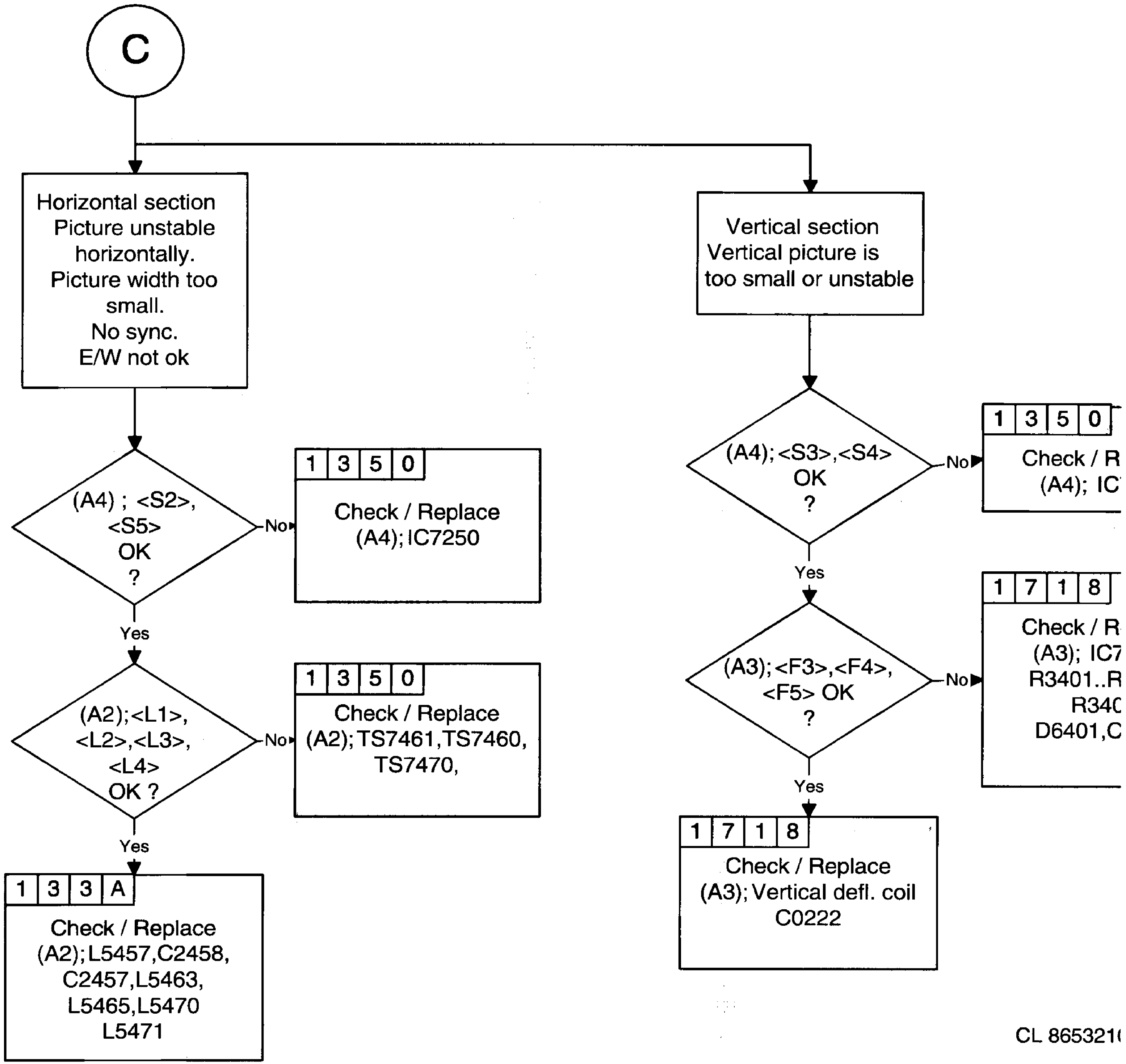
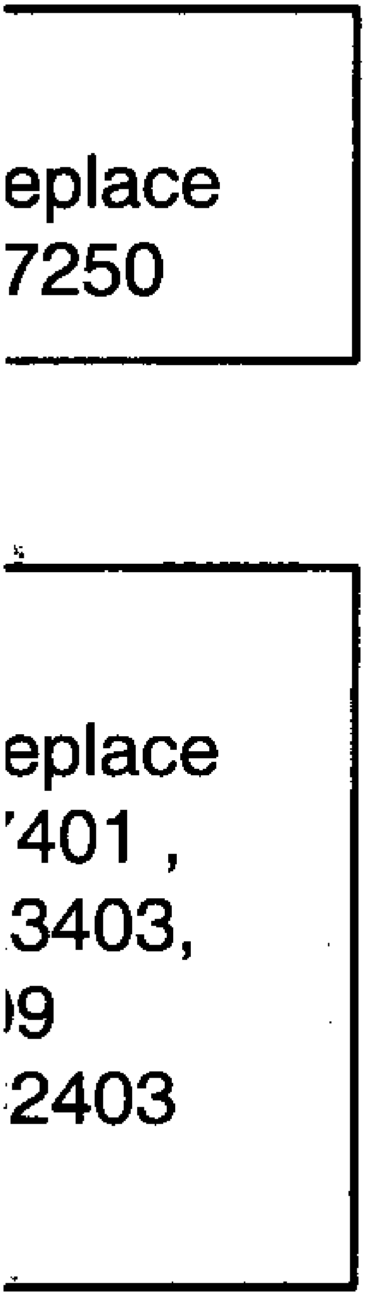

A
Ensure communication with the RC, Check/Replace (A8);IC7680 Put the set into the Service Default Mode either via the DST or by pressing the buttons on the RC in the following order :062596<MENU>, or via the service pins
An error code is indicated by the blinking LED via the SDM. n-times blinking means error n. See also chapter 5.5 for detailled information
Is there an error indication ?
No
Yes
If the mainsupply or EHT is missing, then the error message may not be reliable. So in this state check/replace the components of the mainsupply and EHT in the first place see schematics ; (A1), (A2) and (A4);IC7250-D <S2>
B
No picture (Colour missing) No Menu Black screen Sound OK
(B); Heater / Filaments OK ?
No
1 3 1 0
Check / Replace (A2);L5480,Conn.0220 (B);Conn.0244,R3341, R3342,CRT-Socket, L5342,CRT
Yes
(B);VG2 OK ?
No
1 3 1 0
Adjust VG2 Check / Replace (A2);TR5445, (B);R3343,C2343 CRT
Yes
(A3);<F3>,<F4> OK ?
No
1 3 1 0
Check/Replace (A3);IC7401, D6401.C2403,D6402
Yes
(A6);<V1..V4> <V6,V7,V8> OK
No
1 3 1 0
Check/Replace (A6);IC7250-B/C
Yes
(B);<V11..V16> OK
No
1 3 1 0
Check/Replace (B);Conn0245,IC7330, CRT Socket
Yes
1 3 1 0
Check/Replace (B);CRT
Picture OK Menu OK NO Sound (l,r,l+r)
NICAM/2CS/ Multimono (MSP3415D)
(A5);<I2>,SIF Ok ?
No
Yes
(A10); <A10>..<A13> OK ?
No
Yes
(A12); <A16>..<A18> OK ?
No
Yes
1 5 1 0
Check / Replace (A13);Conn.0234, Conn.0215 Speakers

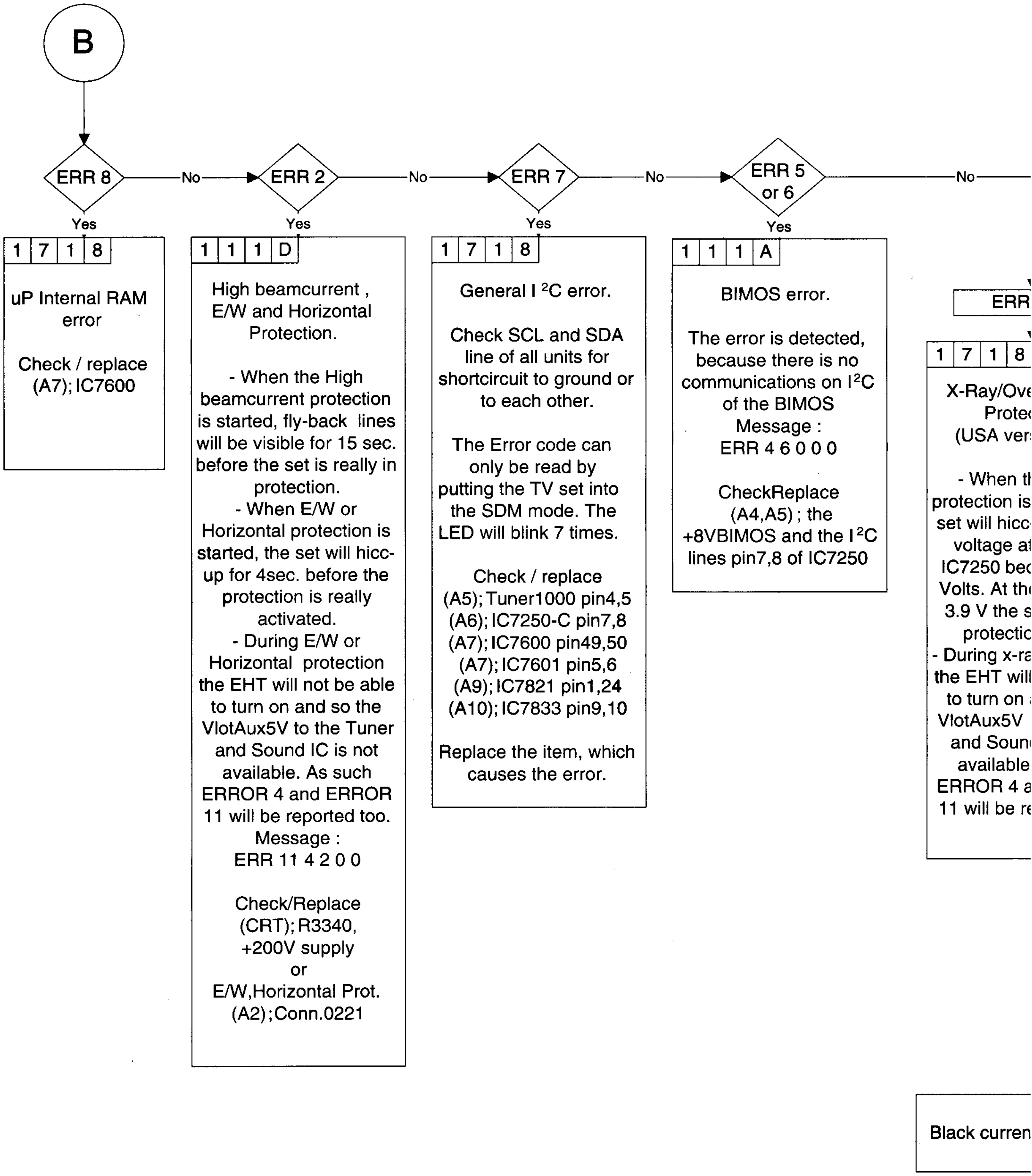

NO Picture
NO Sound
Menu OK
Deflection not OK
Pictures are not
symetrical and unstable
C
BTSC
(TDA9851)
1 2 1 0
Check / Replace
(A5);Antenna,
VT_Supply,D6008,
(A6);X1205..X1208
1 0
Check / Replace
(A5); IC7250-A,
TS7266
No
(A5);<I4>
OK
?
Yes
Sound and Picture
from external source
OK ?
No
1 1 1 A
Check / Replace
IC7250
Yes
1 0
Check / Replace
(A10); IC7833
(A9);<A2>,<A3>
<A6>,<A7> OK
?
No
1 2 1 0
Check / Replace
Tuner1000
Yes
1 0
Check / Replace
);TS7904..TS7910
2);IC7050..IC7053
1 5 1 0
Check / Replace
(A9);IC7821
IC7822

CL 86532104_035.eps
190299


C
Horizontal section
Picture unstable horizontally.
Picture width too small.
No sync.
E/W not ok
(A4) ; <S2>, <S5> OK ?
No
1 3 5 0
Check / Replace (A4); IC7250
Yes
(A2);<L1>, <L2>,<L3>, <L4> OK ?
No
1 3 5 0
Check / Replace (A2); TS7461,TS7460, TS7470,
Yes
1 3 3 A
Check / Replace (A2); L5457,C2458, C2457,L5463, L5465,L5470 L5471
Vertical section
Vertical picture is too small or unstable
(A4); <S3>,<S4> OK ?
No
1 3 5 0
Check / R
(A4); IC
Yes
(A3); <F3>,<F4>, <F5> OK ?
No
1 7 1 8
Check / R
(A3); IC7
R3401..R
R340
D6401,C
Yes
1 7 1 8
Check / Replace (A3); Vertical defl. coil C0222
CL 865321


eplace
7250
eplace
401 ,
3403,
9
2403

4_036.eps
190299



uP Internal RAM error

Check / replace (A7); IC7600

High beamcurrent , E/W and Horizontal Protection.

- When the High beamcurrent protection is started, fly-back lines will be visible for 15 sec. before the set is really in protection.
- When E/W or Horizontal protection is started, the set will hicc-up for 4sec. before the protection is really activated.
- During E/W or Horizontal protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.

Message : ERR 11 4 2 0 0

Check/Replace (CRT); R3340, +200V supply or E/W,Horizontal Prot. (A2); Conn.0221

General I ^{2}C error.

Check SCL and SDA line of all units for shortcircuit to ground or to each other.

The Error code can only be read by putting the TV set into the SDM mode. The LED will blink 7 times.

Check / replace
(A5); Tuner1000 pin4,5
(A6); IC7250-C pin7,8
(A7); IC7600 pin49,50
(A7); IC7601 pin5,6
(A9); IC7821 pin1,24
(A10); IC7833 pin9,10

Replace the item, which causes the error.

BIMOS error.

The error is detected, because there is no communications on I^{2}C of the BIMOS

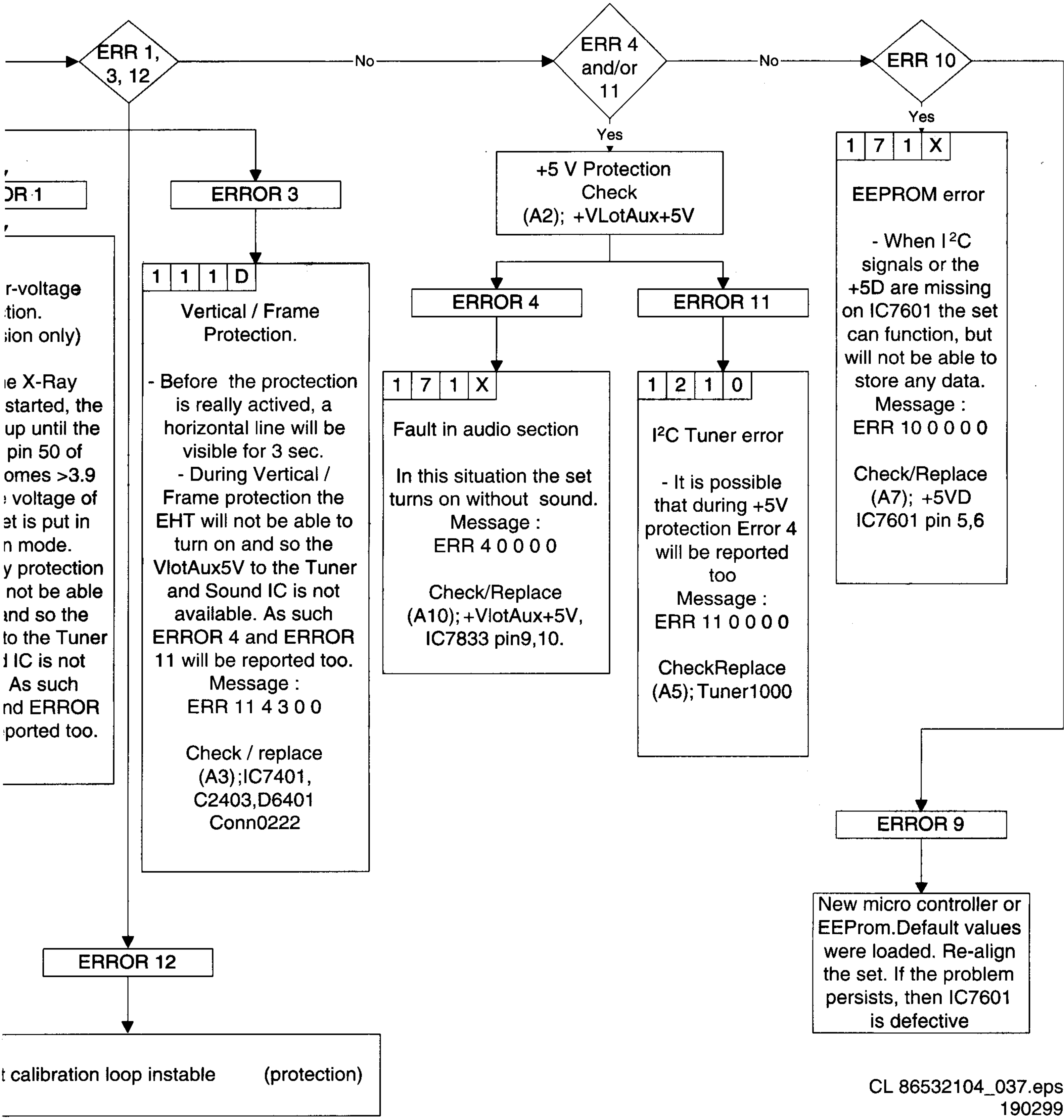
Message : ERR 4 6 0 0 0

CheckReplace (A4,A5) ; the +8VBIMOS and the I^{2}C lines pin7,8 of IC7250

X-Ray/Ove
Prote
(USA ver

- When t
protection is
set will hicc
voltage a
IC7250 bec
Volts. At th
3.9 V the s
protectio
- During x-ra
the EHT will
to turn on
VlotAux5V
and Soun
available
ERROR 4 a
11 will be r

Black curren


ERR 1, 3, 12
No
ERR 4 and/or 11
Yes
No
ERR 10
Yes
ERROR 3
1 1 1 D
+5 V Protection Check (A2); +VLotAux+5V
ERROR 4
ERROR 11
1 7 1 X
1 2 1 0
1 7 1 X
ERROR 9
ERROR 12
OR 1

r-voltage
tion.
ion only)

e X-Ray
started, the
up until the
pin 50 of
omes >3.9
voltage of
et is put in
n mode.
y protection
not be able
and so the
to the Tuner
I IC is not
As such
nd ERROR
ported too.

Vertical / Frame Protection.

- Before the proctection is really actived, a horizontal line will be visible for 3 sec.
- During Vertical / Frame protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.
Message :
ERR 11 4 3 0 0

Check / replace
(A3);IC7401,
C2403,D6401
Conn0222

Fault in audio section

In this situation the set turns on without sound.
Message :
ERR 4 0 0 0 0

Check/Replace
(A10);+VlotAux+5V,
IC7833 pin9,10.

I²C Tuner error

- It is possible that during +5V protection Error 4 will be reported too
Message :
ERR 11 0 0 0 0

CheckReplace
(A5);Tuner1000

EEPROM error

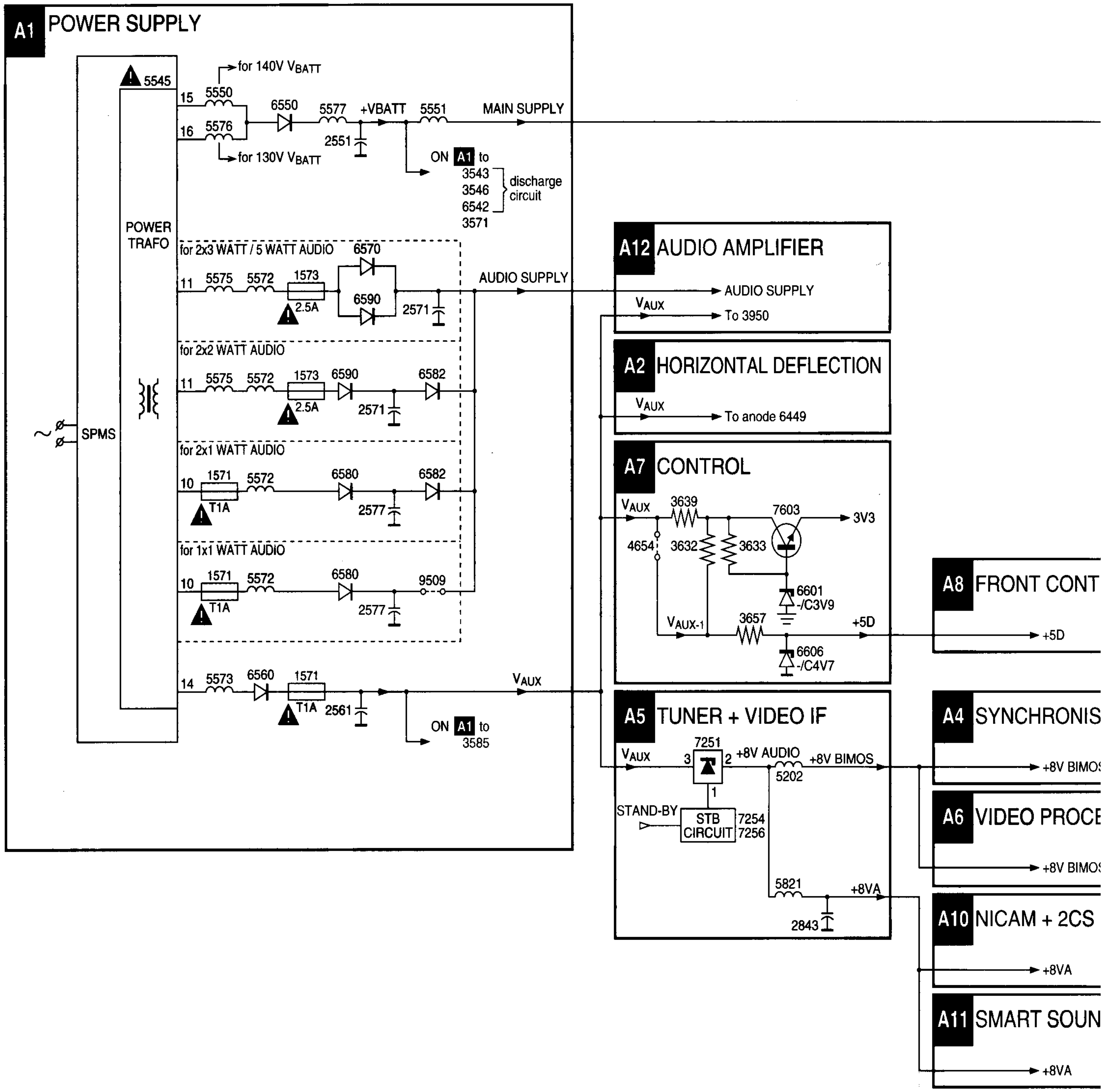
- When I²C signals or the +5D are missing on IC7601 the set can function, but will not be able to store any data.
Message :
ERR 10 0 0 0 0

Check/Replace
(A7); +5VD
IC7601 pin 5,6

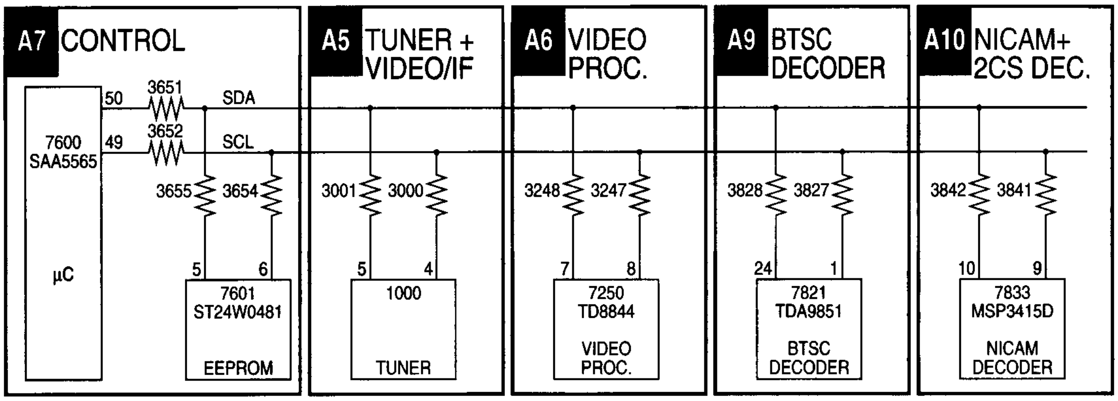
New micro controller or EEProm.Default values were loaded. Re-align the set. If the problem persists, then IC7601 is defective

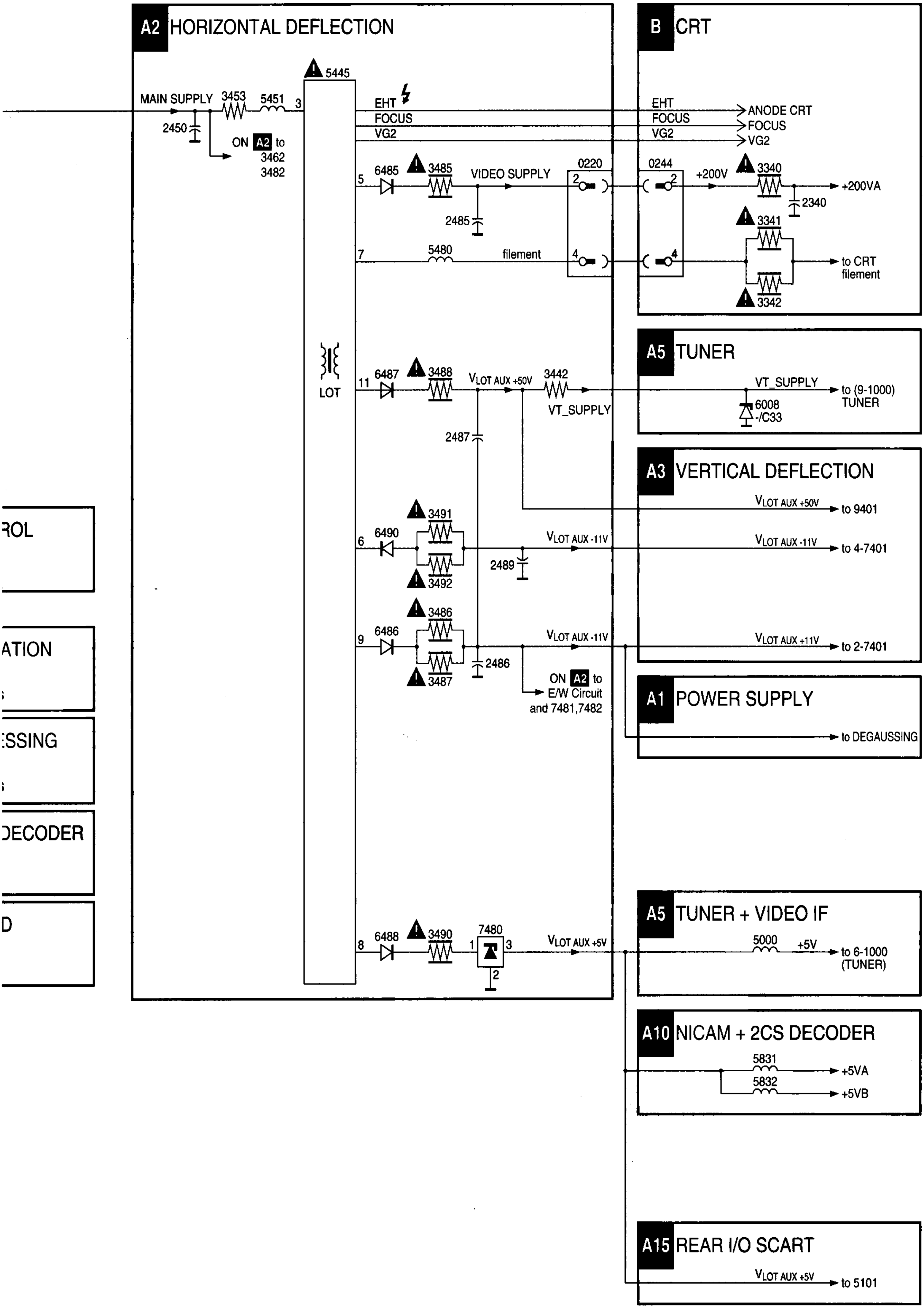
t calibration loop instable (protection)

CL 86532104_037.eps
190299

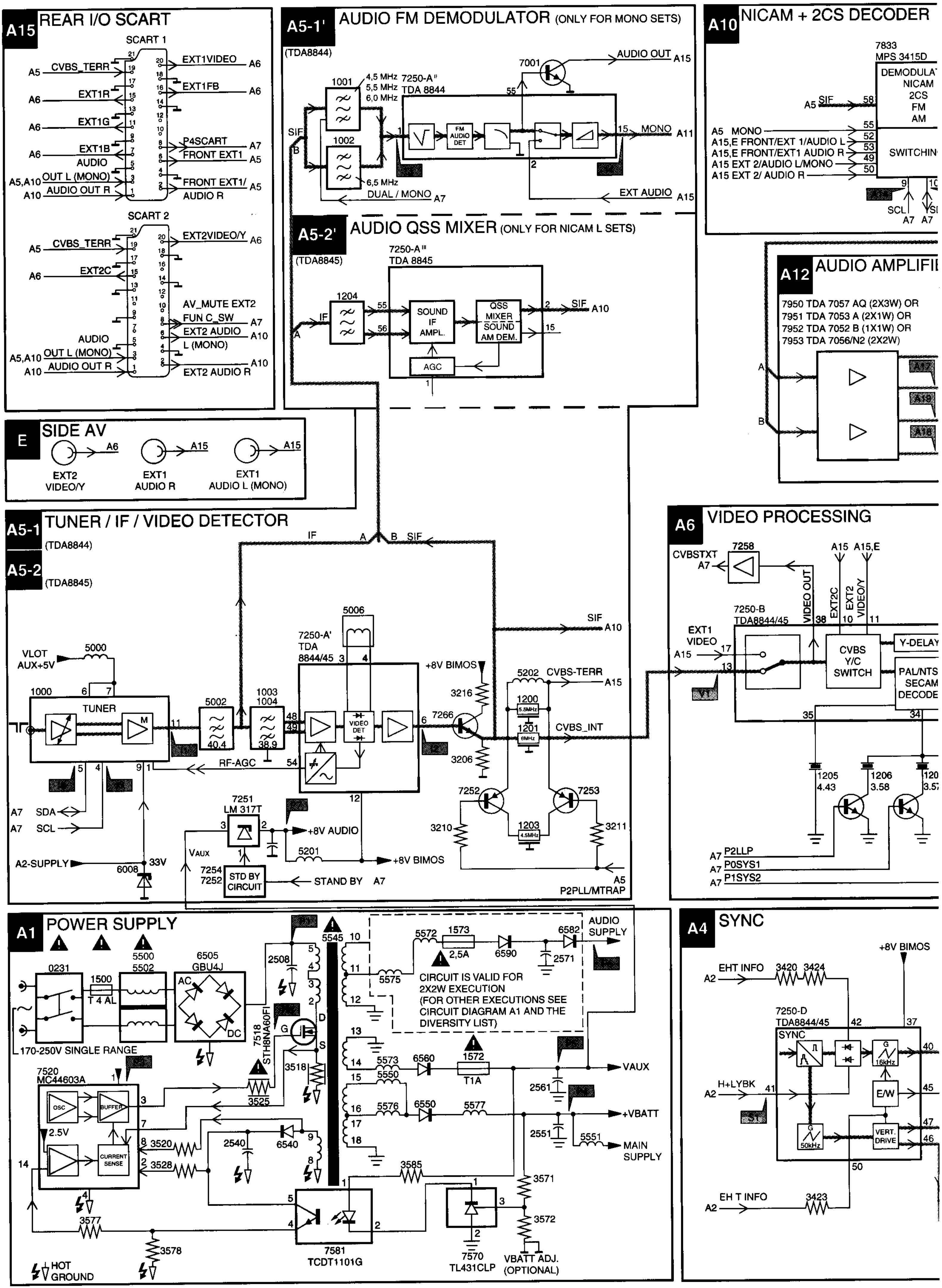

A1 POWER SUPPLY
5545
POWER TRAFO
SPMS
15
16
5550
5576
for 140V V_{BATT}
for 130V V_{BATT}
6550
5577
+VBATT
5551
2551
MAIN SUPPLY
ON A1 to
3543
3546
6542
3571
discharge circuit
for 2x3 WATT / 5 WATT AUDIO
11
5575
5572
1573
2.5A
6570
6590
2571
AUDIO SUPPLY
for 2x2 WATT AUDIO
6582
for 2x1 WATT AUDIO
10
1571
T1A
6580
2577
for 1x1 WATT AUDIO
9509
14
5573
6560
2561
V_{AUX}
ON A1 to
3585
A12 AUDIO AMPLIFIER
AUDIO SUPPLY
To 3950
A2 HORIZONTAL DEFLECTION
To anode 6449
A7 CONTROL
3639
7603
3V3
4654
3632
3633
6601
-/C3V9
V_{AUX-1}
3657
+5D
6606
-/C4V7
A8 FRONT CONT
+5D
A5 TUNER + VIDEO IF
7251
3
2
1
+8V AUDIO
+8V BIMOS
5202
STAND-BY
STB CIRCUIT
7254
7256
5821
+8VA
2843
A4 SYNCHRONIS
+8V BIMOS
A6 VIDEO PROCE
+8V BIMOS
A10 NICAM + 2CS
+8VA
A11 SMART SOUN
+8VA

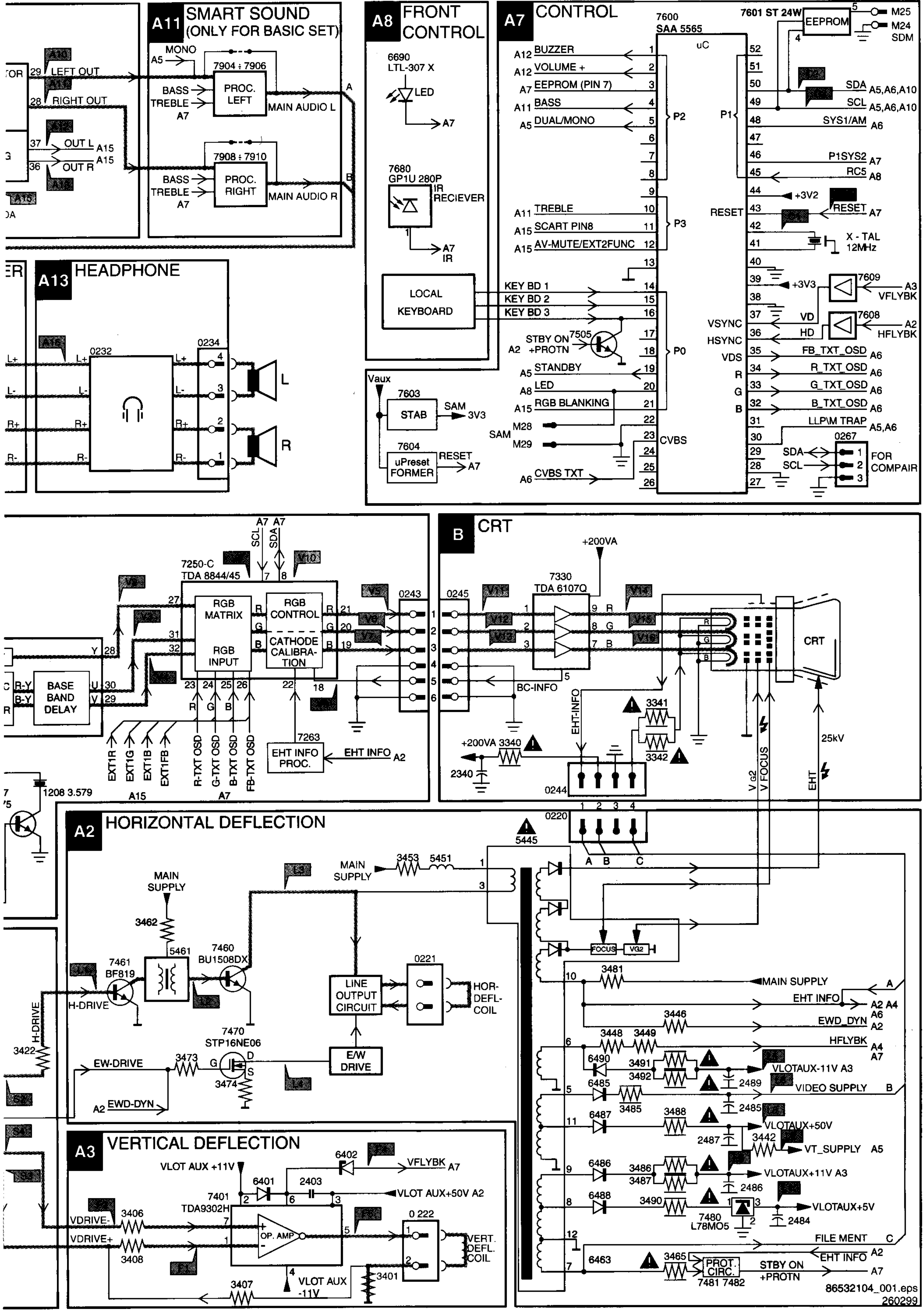
IIC BUS INTERCONNECTION DIAGRAM


A7 CONTROL
7600
SAA5565
μC
50
49
3651
3652
SDA
SCL
3655
3654
5
6
7601
ST24W0481
EEPROM
A5 TUNER + VIDEO/IF
3001
3000
5
4
1000
TUNER
A6 VIDEO PROC.
3248
3247
7
8
7250
TD8844
VIDEO PROC.
A9 BTSC DECODER
3828
3827
24
1
7821
TDA9851
BTSC DECODER
A10 NICAM+ 2CS DEC.
3842
3841
10
9
7833
MSP3415D
NICAM DECODER

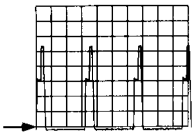

A2 HORIZONTAL DEFLECTION
MAIN SUPPLY
3453
5451
2450
ON A2 to 3462 3482
5445
3
EHT
FOCUS
VG2
LOT
5
6485
3485
VIDEO SUPPLY
2485
0220
7
5480
filement
11
6487
3488
V_LOT AUX +50V
3442
VT_SUPPLY
2487
6
6490
3491
3492
V_LOT AUX -11V
2489
9
6486
3486
3487
2486
V_LOT AUX -11V
ON A2 to E/W Circuit and 7481,7482
8
6488
3490
7480
1
2
3
V_LOT AUX +5V
B CRT
EHT
FOCUS
VG2
ANODE CRT
FOCUS
VG2
0244
+200V
3340
2340
+200VA
3341
3342
to CRT filement
A5 TUNER
VT_SUPPLY
6008 -/C33
to (9-1000) TUNER
A3 VERTICAL DEFLECTION
V_LOT AUX +50V
to 9401
V_LOT AUX -11V
to 4-7401
V_LOT AUX +11V
to 2-7401
A1 POWER SUPPLY
to DEGAUSSING
A5 TUNER + VIDEO IF
5000
+5V
to 6-1000 (TUNER)
A10 NICAM + 2CS DECODER
5831
+5VA
5832
+5VB
A15 REAR I/O SCART
V_LOT AUX +5V
to 5101
ROL
ATION
ESSING
DECODER
D

CL 86532104_002.eps
260299


A15 REAR I/O SCART
SCART 1
CVBS_TERR
EXT1VIDEO
EXT1R
EXT1FB
EXT1G
EXT1B
P4SCART
FRONT EXT1
AUDIO
OUT L (MONO)
AUDIO OUT R
FRONT EXT1/ AUDIO R
SCART 2
EXT2VIDEO/Y
EXT2C
AV_MUTE EXT2
FUN C_SW
EXT2 AUDIO L (MONO)
EXT2 AUDIO R
A5-1' AUDIO FM DEMODULATOR (ONLY FOR MONO SETS)
(TDA8844)
1001
1002
4,5 MHz
5,5 MHz
6,0 MHz
6,5 MHz
7250-A'' TDA 8844
7001
AUDIO OUT
FM AUDIO DET
MONO
DUAL / MONO
EXT AUDIO
SIF
A5-2' AUDIO QSS MIXER (ONLY FOR NICAM L SETS)
(TDA8845)
7250-A''' TDA 8845
1204
IF
SOUND IF AMPL.
QSS MIXER
SOUND AM DEM.
AGC
A10 NICAM + 2CS DECODER
7833 MPS 3415D
DEMODULA
NICAM
2CS
FM
AM
SWITCHIN
A5 MONO
A15,E FRONT/EXT 1/AUDIO L
A15,E FRONT/EXT1 AUDIO R
A15 EXT 2/AUDIO L/MONO
A15 EXT 2/ AUDIO R
SCL
SI
A12 AUDIO AMPLIFI
7950 TDA 7057 AQ (2X3W) OR
7951 TDA 7053 A (2X1W) OR
7952 TDA 7052 B (1X1W) OR
7953 TDA 7056/N2 (2X2W)
E SIDE AV
EXT2 VIDEO/Y
EXT1 AUDIO R
EXT1 AUDIO L (MONO)
A5-1 TUNER / IF / VIDEO DETECTOR
(TDA8844)
A5-2
(TDA8845)
VLOT AUX+5V
5000
1000
TUNER
5002
40.4
1003 1004
38.9
RF-AGC
7250-A' TDA 8844/45
5006
VIDEO DET
+8V BIMOS
3216
7266
3206
5202 CVBS-TERR
1200
1201
CVBS_INT
7252
7253
1203
3210
3211
P2PLL/MTRAP
SDA
SCL
A2-SUPPLY
6008
33V
7251 LM 317T
+8V AUDIO
5201
+8V BIMOS
VAUX
7254 7252
STD BY CIRCUIT
STAND BY
A6 VIDEO PROCESSING
CVBSTXT
7258
VIDEO OUT
EXT2C
EXT2 VIDEO/Y
7250-B TDA8844/45
EXT1 VIDEO
CVBS Y/C SWITCH
Y-DELAY
PAL/NTS SECAM DECODE
1205 4.43
1206 3.58
120 3.5
P2LLP
P0SYS1
P1SYS2
A1 POWER SUPPLY
0231
1500 T 4 AL
5500 5502
6505 GBU4J
170-250V SINGLE RANGE
7520 MC44603A
OSC
BUFFER
CURRENT SENSE
2.5V
3520
3528
3525
3577
3578
7518 STH8NA60FI
3518
2508
5545
2540
6540
5572
1573
2,5A
6590
6582
2571
AUDIO SUPPLY
5575
CIRCUIT IS VALID FOR 2X2W EXECUTION (FOR OTHER EXECUTIONS SEE CIRCUIT DIAGRAM A1 AND THE DIVERSITY LIST)
5573
5550
6560
1572 T1A
VAUX
2561
5576
6550
5577
+VBATT
2551
5551
MAIN SUPPLY
3585
3571
3572
7581 TCDT1101G
7570 TL431CLP
VBATT ADJ. (OPTIONAL)
HOT GROUND
A4 SYNC
+8V BIMOS
EHT INFO
3420
3424
7250-D TDA8844/45
SYNC
16kHz
E/W
H+LYBK
50kHz
VERT. DRIVE
EH T INFO
3423

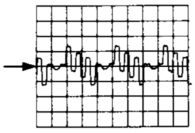

A11
SMART SOUND
(ONLY FOR BASIC SET)
MONO
A5
7904 ÷ 7906
BASS
TREBLE
A7
PROC. LEFT
MAIN AUDIO L
7908 ÷ 7910
PROC. RIGHT
MAIN AUDIO R
A
B
29 LEFT OUT
28 RIGHT OUT
37 OUT L A15
36 OUT R A15
A8
FRONT CONTROL
6690
LTL-307 X
LED
A7
7680
GP1U 280P
IR RECIEVER
A7 IR
LOCAL KEYBOARD
A7
CONTROL
7600
SAA 5565
uC
7601 ST 24W
EEPROM
M25
M24
SDM
A12 BUZZER
A12 VOLUME +
A7 EEPROM (PIN 7)
A11 BASS
A5 DUAL/MONO
P2
A11 TREBLE
A15 SCART PIN8
A15 AV-MUTE/EXT2FUNC
P3
KEY BD 1
KEY BD 2
KEY BD 3
STBY ON 7505
A2 +PROTN
A5 STANDBY
A8 LED
A15 RGB BLANKING
P0
SAM M28
M29
CVBS
A6 CVBS TXT
P1
SDA A5,A6,A10
SCL A5,A6,A10
SYS1/AM A6
P1SYS2 A7
RC5 A8
+3V2
RESET
RESET A7
X - TAL 12MHz
+3V3
7609
A3 VFLYBK
VSYNC
VD
7608
A2 HFLYBK
HSYNC
HD
VDS
FB_TXT_OSD A6
R R_TXT_OSD A6
G G_TXT_OSD A6
B B_TXT_OSD A6
LLP\M TRAP A5,A6
0267
SDA
SCL
FOR COMPAIR
Vaux
7603
STAB
SAM 3V3
7604
uPreset FORMER
RESET A7
A13
HEADPHONE
0232
0234
L+ L- R+ R-
L
R
A7 SCL
A7 SDA
7250-C
TDA 8844/45
RGB MATRIX
RGB INPUT
RGB CONTROL
CATHODE CALIBRA-TION
BASE BAND DELAY
R-Y
B-Y
Y
EXT1R EXT1G EXT1B EXT1FB
A15
R-TXT OSD G-TXT OSD B-TXT OSD FB-TXT OSD
A7
7263
EHT INFO PROC.
EHT INFO A2
1208 3.579
0243
0245
B
CRT
+200VA
7330
TDA 6107Q
BC-INFO
EHT-INFO
3341
3342
+200VA 3340
2340
0244
V G2
V FOCUS
25kV
EHT
A2
HORIZONTAL DEFLECTION
MAIN SUPPLY
3462
5461
7461
BF819
H-DRIVE
3422
7460
BU1508DX
7470
STP16NE06
EW-DRIVE
3473
3474
A2 EWD-DYN
3453 5451
MAIN SUPPLY
LINE OUTPUT CIRCUIT
0221
HOR-DEFL-COIL
E/W DRIVE
0220
5445
A B C
FOCUS
VG2
3481 MAIN SUPPLY
EHT INFO A2 A4
3446 EWD_DYN A6 A2
3448 3449 HFLYBK A4 A7
6490
3491
3492
VLOTAUX-11V A3
2489
6485
3485
VIDEO SUPPLY B
6487
3488
2485
VLOTAUX+50V
2487
3442 VT_SUPPLY A5
6486
3486
3487
VLOTAUX+11V A3
2486
6488
3490
7480
L78MO5
VLOTAUX+5V
2484
FILE MENT C
EHT INFO A2
6463
3465
PROT. CIRC.
7481 7482
STBY ON +PROTN A7
A3
VERTICAL DEFLECTION
VLOT AUX +11V
6401
6402
VFLYBK A7
2403
VLOT AUX+50V A2
7401
TDA9302H
OP. AMP
VDRIVE- 3406
VDRIVE+ 3408
0 222
VERT. DEFL. COIL
VLOT AUX -11V
3401
3407
86532104_001.eps
260299

S1 H FLYBK



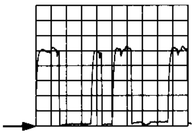
1V / div DC
20µs / div

V3



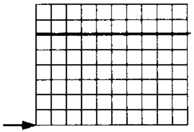
0.5V / div AC
20µs / div

C2 SDA uP



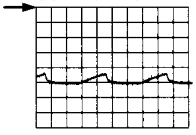
1V / div DC
20µs / div

P1 ⏻



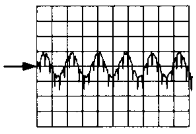
50V / div DC
5ms / div

L5 V_{LOT} AUX-11



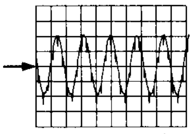
2V / div DC
5ms / div

A10 LEFT OUT



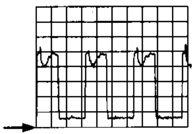
0.2V / div AC
0.2ms/div

A19 L-



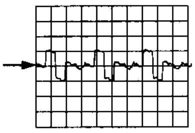
0.2V / div AC
0.2ms/div

S2 HDRIVE



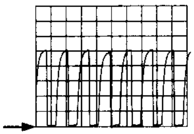
0.2V / div DC
20µs / div

V4



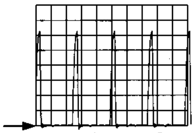
0.5V / div AC
20µs / div

C3 SCL uP



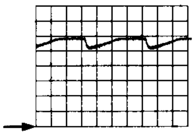
1V / div DC
10µs / div

P2 Ⓘ



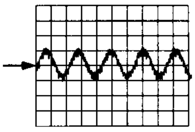
2V / div DC
10µs / div

L9 V_{LOT} AUX+11



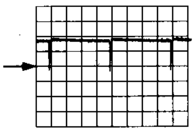
2V / div DC
5ms / div

A11 RIGHT OUT



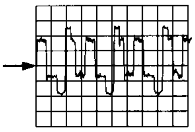
0.2V / div AC
0.5ms / div

S3 VDRIVE+



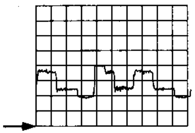
1V / div DC
5ms / div

V5



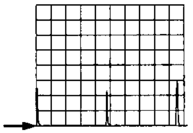
0.5V / div AC
20µs / div

V11 R



1V / div DC
10µs / div

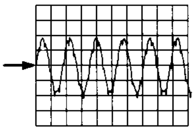
P2 ⏻



2V / div DC
10µs / div

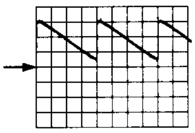
L1 ⏻ 0.3V DC
L3 ⏻ 138V DC
L6 190 V DC
L7 Ⓘ 32.5V DC
L7 ⏻ 28V DC
L8 Ⓘ 46V DC
L8 ⏻ 30V DC
L10 5V DC

A12 AUDIO OUT L/MONO



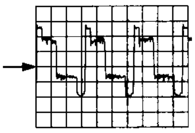
0.5V / div AC
0.2ms / div

S4 VDRIVE-



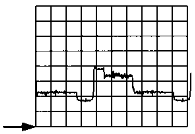
1V / div DC
5ms / div

V6



0.5V / div AC
20µs / div

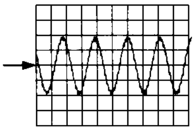
V12 G



1V / div DC
10µs / div

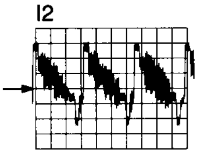
P3 Ⓘ 15V DC
P3 ⏻ 12V DC
P4 Ⓘ 138V DC
P4 ⏻ 138V DC
P5 Ⓘ 11.8V DC
P5 ⏻ 9.8V DC
P6 Ⓘ 16V DC
P6 ⏻ 13.8V DC
P7 8V DC

A13 AUDIO OUT R



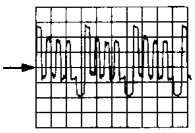
0.5V / div AC
0.5ms / div

I2



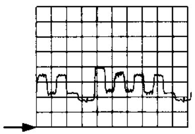
0.5V / div AC
20µs / div

V7



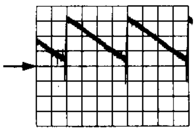
0.5V / div AC
20µs / div

V13 B



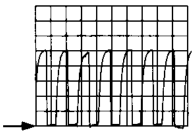
1V / div DC
10µs / div

F1 VDRIVE +



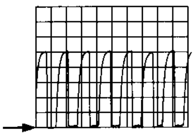
0.5V / div DC
5ms / div

A14 SCL 7833



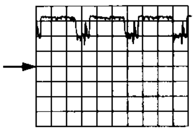
1V / div DC
10µs / div

I5 SCL TUNER



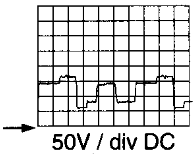
1V / div DC
10µs / div

V8



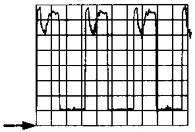
2V / div DC
20µs / div

V14



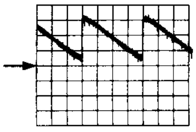
50V / div DC
10µs / div

L1 Ⓘ HDRIVE



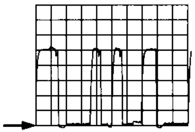
0.1V / div DC
20µs / div

F2 VDRIVE-



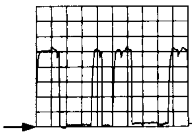
0.5V / div DC
5ms / div

A15 SDA 7833



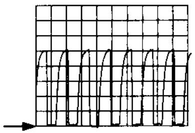
1V / div DC
20µs / div

I6 SDA TUNER



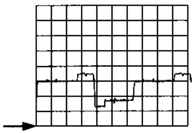
1V / div DC
20µs / div

V9 SCL 7250



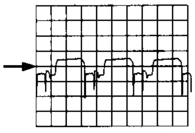
1V / div DC
10µs / div

V15



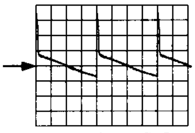
50V / div DC
10µs / div

L2



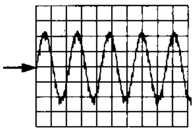
2V / div DC
20µs / div

F3



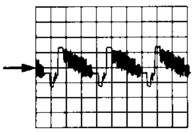
10V / div DC
5ms / div

A16 R+



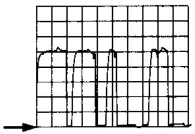
0.2V / div AC
0.5ms / div

V1 CVBS-INT



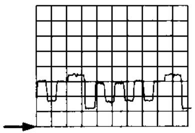
0.5V / div AC
20µs / div

V10 SDA 7250



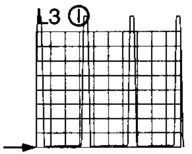
1V / div DC
20µs / div

V16



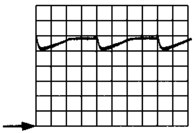
50V / div DC
10µs / div

L3 Ⓘ



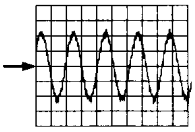
100V / div DC
20µs / div

F4 V FLYBK



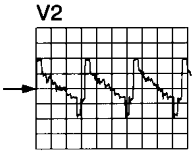
2V / div DC
5ms / div

A17 R-



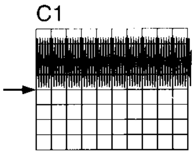
0.2V / div AC
0.5ms / div

V2



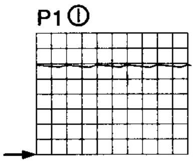
0.5V / div AC
20µs / div

C1



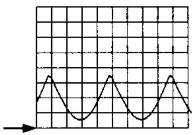
1V / div DC
0.5µs / div

P1 Ⓘ



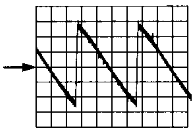
50V / div DC
5ms / div

L4



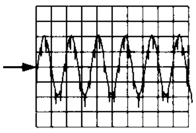
5V / div DC
5ms / div

F5



0.5V / div DC
5ms / div

A18 L+

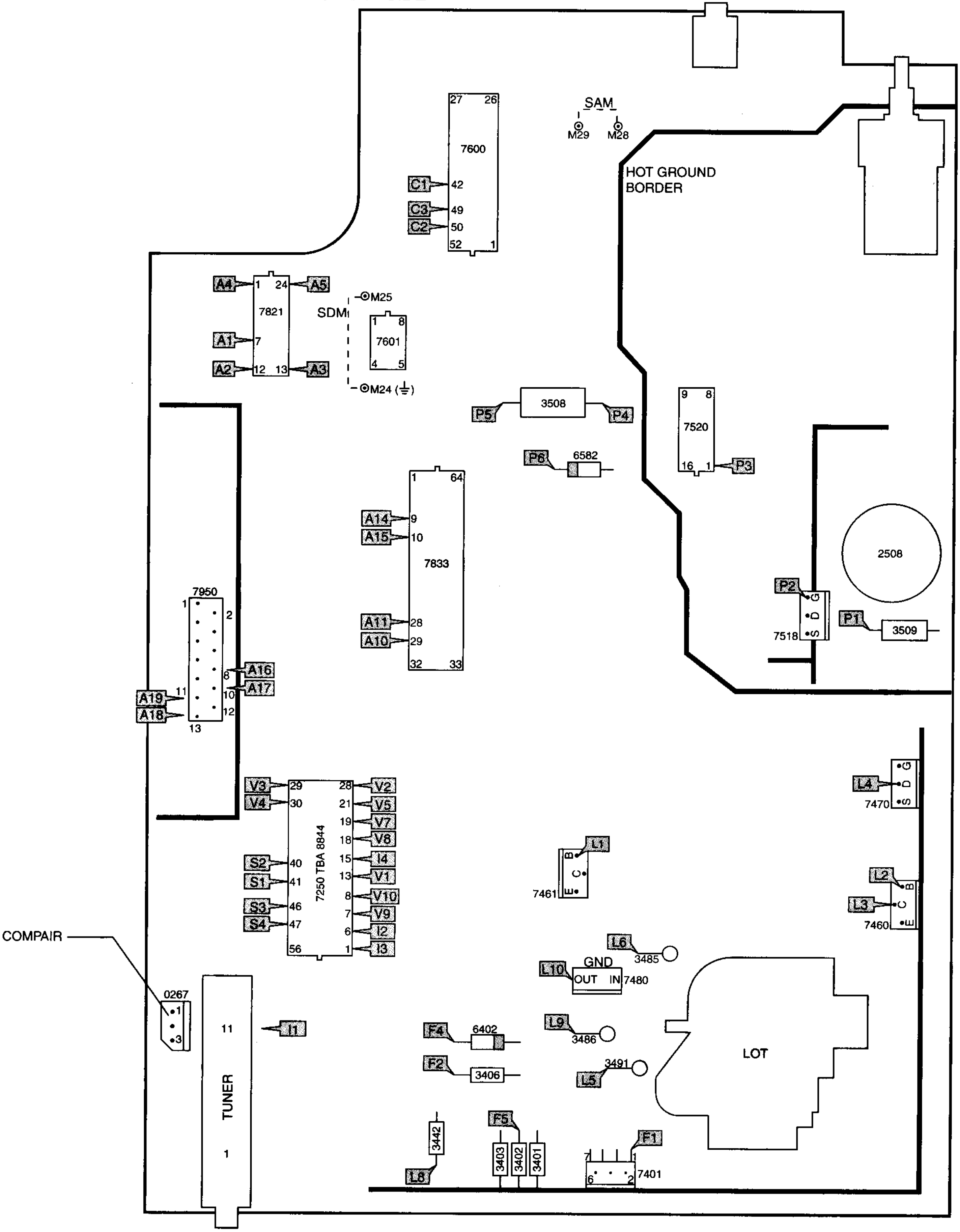


0.2V / div AC
0.2ms / div

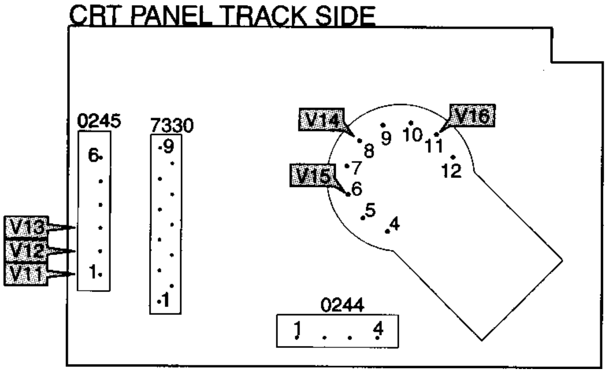
→ = 0V

CL 86532104_020.EPS
190299

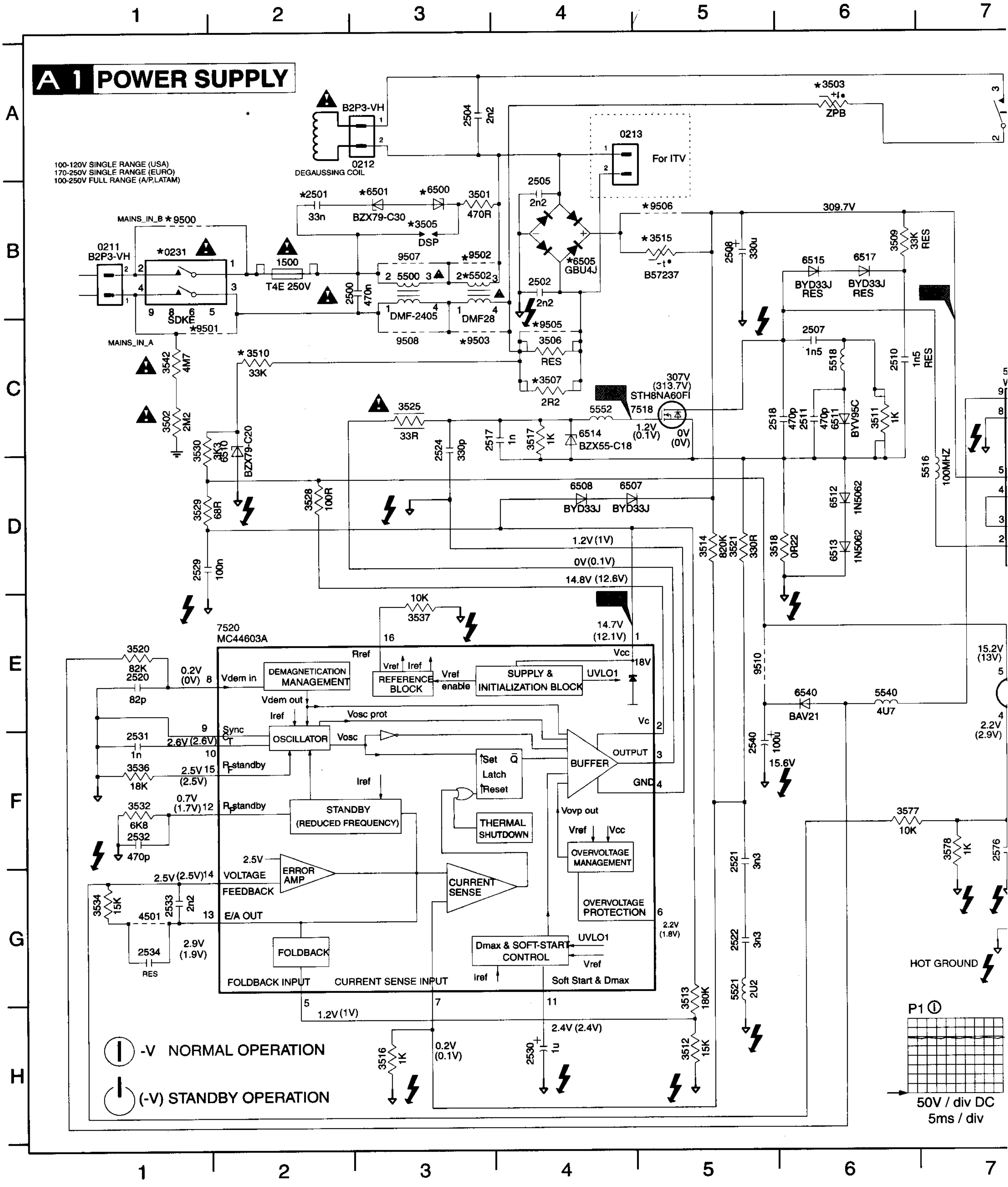
MAIN PANEL COMPONENT SIDE

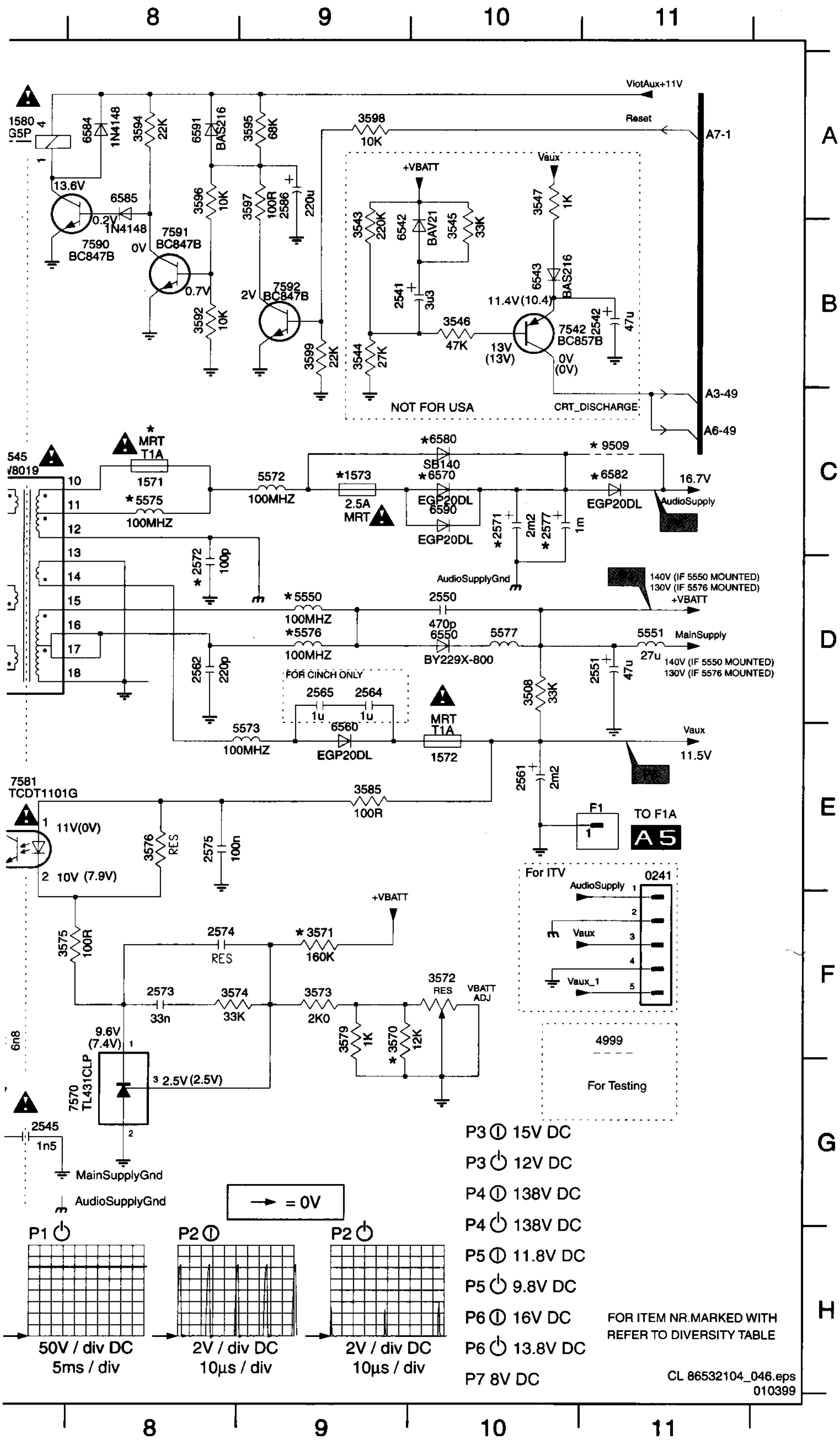

SAM
M29
M28
7600
27
26
42
49
50
52
1
C1
C3
C2
HOT GROUND
BORDER
A4
A5
A1
A2
A3
7821
1
24
7
12
13
SDM
M25
M24 (⏚)
7601
1
8
4
5
3508
P5
P4
7520
9
8
16
1
P3
P6
6582
7833
1
64
9
10
28
29
32
33
A14
A15
A11
A10
2508
P2
7518
G
D
S
P1
3509
7950
1
2
8
10
11
12
13
A16
A17
A19
A18
7250 TBA 8844
29
30
28
21
19
18
15
13
8
7
6
1
40
41
46
47
56
V3
V4
V2
V5
V7
V8
I4
V1
V10
V9
I2
I3
S2
S1
S3
S4
L4
7470
L1
7461
B
C
E
L2
L3
7460
COMPAIR
0267
1
3
TUNER
11
1
I1
L6
3485
GND
L10
OUT
IN
7480
LOT
F4
6402
L9
3486
F2
3406
3491
L5
3442
L8
F5
3403
3402
3401
F1
7
1
6
2
7401

CRT PANEL TRACK SIDE


0245
6
1
7330
9
1
V13
V12
V11
V14
V16
V15
8
9
10
11
12
7
6
5
4
0244
1
4

CL 86532104_018A.EPS
260299


A 1 POWER SUPPLY
1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
100-120V SINGLE RANGE (USA)
170-250V SINGLE RANGE (EURO)
100-250V FULL RANGE (A/P,LATAM)
B2P3-VH
0212
DEGAUSSING COIL
2504
2n2
0213
For ITV
*3503
ZPB
MAINS_IN_B *9500
0211
B2P3-VH
*0231
SDKE
*9501
MAINS_IN_A
*2501
33n
*6501
BZX79-C30
*6500
*3505
DSP
3501
470R
2505
2n2
*9506
309.7V
*3515
B57237
2508
330u
3509
33K
RES
1500
T4E 250V
2500
470n
9507
2 5500 3
*9502
2*5502 3
DMF-2405
DMF28
9508
*9503
2502
2n2
*6505
GBU4J
*9505
6515
BYD33J
RES
6517
BYD33J
RES
2507
1n5
5518
2510
1n5
RES
3542
4M7
*3510
33K
3506
RES
*3507
2R2
307V
(313.7V)
STH8NA60FI
7518
3502
2M2
3525
33R
5552
2524
330p
2517
1n
3517
1K
6514
BZX55-C18
1.2V
(0.1V)
0V
(0V)
2518
470p
2511
470p
6511
BYV95C
3511
1K
5516
100MHZ
3530
3K3
6510
BZX79-C20
3529
68R
3528
100R
6508
BYD33J
6507
BYD33J
6512
1N5062
6513
1N5062
3514
820K
3521
330R
3518
0R22
1.2V (1V)
0V (0.1V)
14.8V (12.6V)
2529
100n
10K
3537
14.7V
(12.1V)
7520
MC44603A
3520
82K
2520
82p
0.2V
(0V)
8
Vdem in
DEMAGNETICATION MANAGEMENT
Rref
16
Vref
Iref
REFERENCE BLOCK
Vref
enable
SUPPLY & INITIALIZATION BLOCK
UVLO1
Vcc
18V
9510
6540
BAV21
5540
4U7
15.2V
(13V)
Vdem out
Iref
Vosc prot
Vc
2
2.2V
(2.9V)
2531
1n
2.6V (2.6V)
9
Sync
CT
10
OSCILLATOR
Vosc
OUTPUT
3
BUFFER
2540
100u
15.6V
3536
18K
2.5V 15
(2.5V)
RF standby
Set
Q̄
Latch
Reset
Iref
GND 4
3532
6K8
2532
470p
0.7V
(1.7V) 12
RF standby
STANDBY
(REDUCED FREQUENCY)
THERMAL SHUTDOWN
Vovp out
Vref
Vcc
OVERVOLTAGE MANAGEMENT
3577
10K
3578
1K
2576
2.5V
ERROR AMP
2.5V (2.5V) 14
VOLTAGE FEEDBACK
CURRENT SENSE
2521
3n3
3534
15K
4501
2533
2n2
13
E/A OUT
OVERVOLTAGE PROTECTION
6
2.2V
(1.8V)
2534
RES
2.9V
(1.9V)
FOLDBACK
Dmax & SOFT-START CONTROL
UVLO1
Vref
2522
3n3
HOT GROUND
FOLDBACK INPUT
CURRENT SENSE INPUT
Iref
Soft Start & Dmax
5521
2U2
5
7
11
3513
180K
P1 ①
1.2V (1V)
2.4V (2.4V)
3516
1K
0.2V
(0.1V)
2530
1u
3512
15K
① -V NORMAL OPERATION
① (-V) STANDBY OPERATION
50V / div DC
5ms / div


8
9
10
11
A
B
C
D
E
F
G
H
VlotAux+11V
Reset
A7-1
A3-49
A6-49
1580
G5P
6584
1N4148
3594
22K
6591
BAS216
3595
68K
3598
10K
13.6V
6585
0.2V
1N4148
7590
BC847B
7591
BC847B
0V
0.7V
3596
10K
3597
100R
2586
220u
3592
10K
2V
7592
BC847B
3599
22K
+VBATT
Vaux
3543
220K
6542
BAV21
3545
33K
3547
1K
6543
BAS216
2541
3u3
3546
47K
11.4V(10.4)
7542
BC857B
2542
47u
13V
(13V)
0V
(0V)
3544
27K
NOT FOR USA
CRT_DISCHARGE
545
/8019
10
11
12
13
14
15
16
17
18
MRT
T1A
1571
*5575
100MHZ
5572
100MHZ
*1573
2.5A
MRT
*6580
SB140
*6570
EGP20DL
6590
EGP20DL
* 9509
*6582
EGP20DL
16.7V
AudioSupply
*2571
2m2
*2577
1m
*2572
100p
AudioSupplyGnd
140V (IF 5550 MOUNTED)
130V (IF 5576 MOUNTED)
+VBATT
*5550
100MHZ
2550
470p
*5576
100MHZ
6550
BY229X-800
5577
5551
27u
MainSupply
2562
220p
FOR CINCH ONLY
2565
1u
2564
1u
6560
EGP20DL
MRT
T1A
1572
3508
33K
2551
47u
5573
100MHZ
Vaux
11.5V
2561
2m2
F1
TO F1A
A5
7581
TCDT1101G
1
11V(0V)
2
10V (7.9V)
3585
100R
3576
RES
2575
100n
For ITV
0241
AudioSupply
Vaux
Vaux_1
1
2
3
4
5
4999
For Testing
+VBATT
3575
100R
2574
RES
*3571
160K
2573
33n
3574
33K
3573
2K0
3572
RES
VBATT
ADJ
3579
1K
*3570
12K
9.6V
(7.4V)
7570
TL431CLP
2.5V (2.5V)
6n8
2545
1n5
MainSupplyGnd
AudioSupplyGnd
→ = 0V
P1 ⏻
P2 ⏽
P2 ⏻
50V / div DC
5ms / div
2V / div DC
10μs / div
2V / div DC
10μs / div

P3 ⏽ 15V DC
P3 ⏻ 12V DC
P4 ⏽ 138V DC
P4 ⏻ 138V DC
P5 ⏽ 11.8V DC
P5 ⏻ 9.8V DC
P6 ⏽ 16V DC
P6 ⏻ 13.8V DC
P7 8V DC

FOR ITEM NR.MARKED WITH *
REFER TO DIVERSITY TABLE

CL 86532104_046.eps
010399

F1	E11
0211	B1
0212	A3
0213	A4
0231	B1
0241	E11
1500	B2
1571	C8
1572	E10
1573	C9
1580	A7
2500	B3
2501	B2
2502	B4
2504	A3
2505	A4
2507	C6
2508	B5
2510	C6
2511	C6
2517	C3
2518	C5
2520	E1
2521	F5
2522	G5
2524	C3
2529	D1
2530	H4
2531	F1
2532	F1
2533	G1
2534	G1
2540	F5
2541	B9
2542	B11
2545	G7
2550	D10
2551	D11
2561	E10
2562	D8
2564	D9
2565	D9
2571	C10
2572	D8
2573	F8
2574	F8
2575	E8
2576	F7
2577	C10
2586	A9
3501	B3
3502	C1
3503	A6
3505	B3
3506	C4
3507	C4
3508	D10
3509	B6
3510	C2
3511	C6
3512	H5
3513	G5
3514	D5
3515	B5
3516	H3
3517	C4
3518	D6
3520	E1
3521	D5
3525	C3
3528	D2
3529	D1
3530	C1
3532	F1
3534	G1
3536	F1
3537	E3
3542	C1
3543	B9
3544	B9
3545	B10
3546	B10
3547	A10
3570	F9
3571	F9
3572	F10
3573	F9
3574	F8
3575	F8
3576	E8
3577	F6
3578	F7
3579	F9
3585	E9
3592	B8
3594	A8
3595	A9
3596	A8
3597	A9
3598	A9
3599	B9
4501	G1
4999	F11
5500	B3
5502	B3
5516	D7
5518	C6
5521	G5
5540	E6
5545	C7
5550	D9
5551	D11
5552	C4
5572	C9
5573	E9
5575	C8
5576	D9
5577	D10
6500	B3
6501	B3
6505	B4
6507	D4
6508	D4
6510	C2
6511	C6
6512	D6
6513	D6
6514	C4
6515	B6
6517	B6
6540	E6
6542	B9
6543	B10
6550	D10
6560	D9
6570	C10
6580	C10
6582	C11
6584	A8
6585	A8
6590	C10
6591	A8
7518	C4
7520	E2
7542	B10
7570	G8
7581	E7
7590	B8
7591	B8
7592	B9
9500	B1
9501	C1
9502	B3
9503	C3
9505	C4
9506	B5
9507	B3
9508	C3
9509	C11
9510	E5

DIVERSITY TABLE FOR POWER SUPPLY

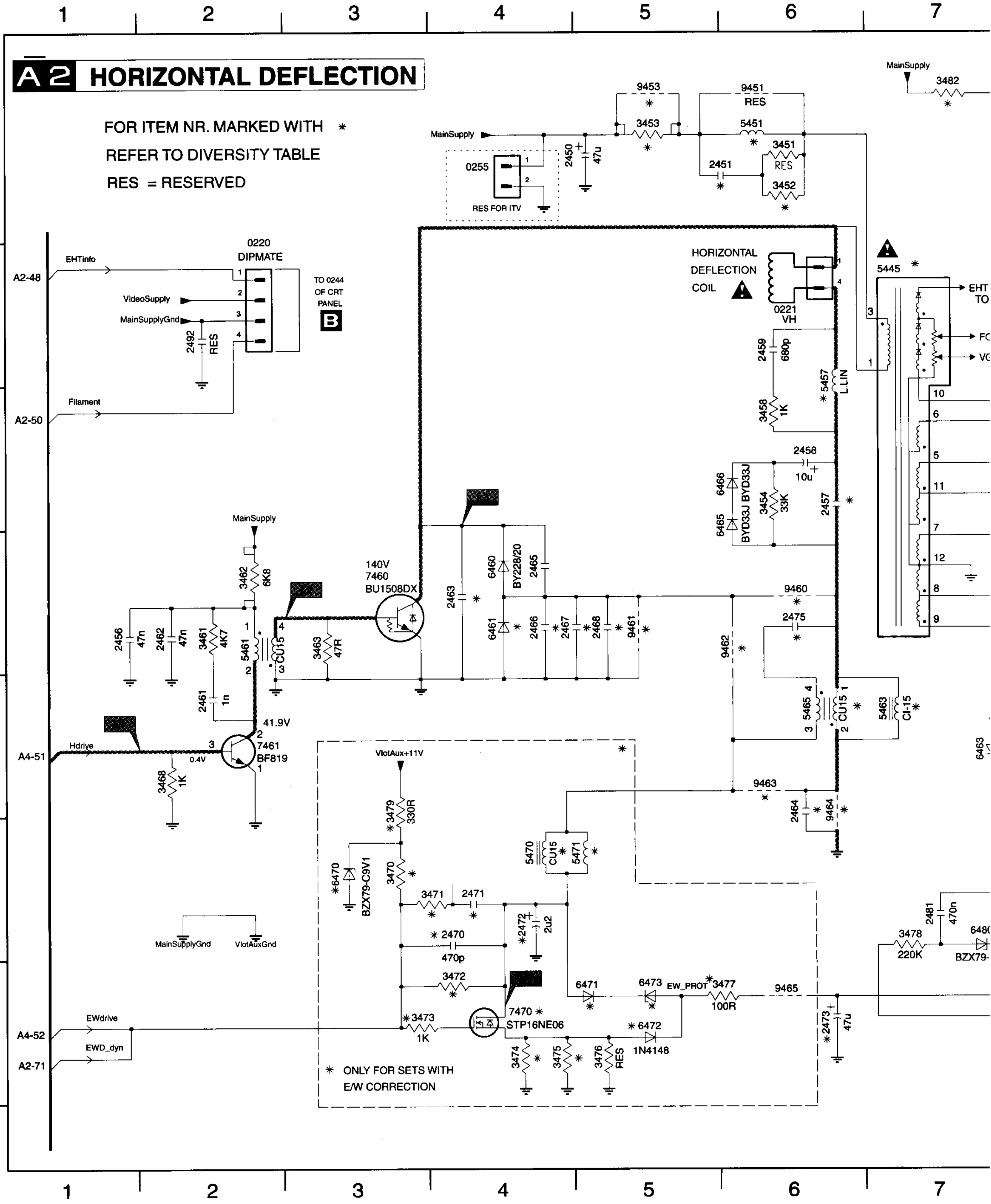
DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH*															
ITEM	FR_CIS 25I/29I AP	LR USA	FR_NONCIS AP	HR 25I/29I EUROPE	HR_CIS 25I/29I AP	PS_FR_US	PS_FR_LA	HR 25I/29I CHINA	PS_FR NONCIS IND	ITV	140V VBATT	130V VBATT	2X3w/5w AUDIO	2X1w AUDIO	1X AUD
0231	YES	---	YES	YES	YES	---	YES	YES	---	YES	---	---	---	---	--
1571	---	---	---	---	---	---	---	---	---	---	---	---	---	T1.0A	T1
1573	---	---	---	---	---	---	---	---	---	---	---	---	T2.5A	---	--
2501	---	---	YES	---	---	---	YES	---	YES	---	---	---	---	---	--
2508	330/400V	470/200V	330/400V	220/400V	220/400V	330/400V	330/400V	220/450V	330/450V	220/400V	---	---	---	---	--
2561	3300u	1000u	3300u	3300u	3300u	1000u	3300u	3300u	3300u	---	---	---	---	---	--
2571	---	---	---	---	---	---	---	---	---	---	---	---	2200/25V	---	--
2572	---	330p	---	---	---	---	---	---	---	---	---	---	---	---	--
2577	---	---	---	---	---	---	---	---	---	---	---	---	---	1000/16V	1000
3503	220V/9R	110V/10R	220V/9R	220V/9R	220V/9R	220V/9R	220V/9R	220V/9R	---	220V/9R	---	---	---	---	--
3505	YES	YES	---	YES	YES	YES	---	YES	---	---	---	---	---	---	--
3507	---	---	---	2R2/5w	2R2/5w	---	---	2R2/5w	---	2R2/5w	---	---	---	---	--
3510	33K/3w	33K/3w	33K/3w	68K/3w	68K/3w	33K/3w	33K/3w	68K/3w	33K/3w	---	---	---	---	---	--
3515	NTC 2R5	NTC 2R5	NTC 2R5	---	---	NTC 2R5	NTC 2R5	---	NTC 2R5	---	---	---	---	---	--
3570	---	---	---	---	---	---	---	---	---	---	10K	15K	---	---	--
3571	---	---	---	---	---	---	---	---	---	---	160K	150K	---	---	--
5502	DMF2810	---	---	DMF2820	DMF2820	---	---	DMF2820	---	---	---	---	---	---	--
5550	---	---	---	---	---	---	---	---	---	---	YES	---	---	---	--
5575	---	---	---	---	---	---	---	---	---	---	---	---	YES	---	--
5576	---	---	---	---	---	---	---	---	---	---	---	YES	---	---	--
6500	---	---	BZX79-C30	---	---	---	BZX79-C30	---	BZX79-C30	---	---	---	---	---	--
6501	---	---	BZX79-C30	---	---	---	BZX79-C30	---	BZX79-C30	---	---	---	---	---	--
6505	GBU6JL	GBU6JL	GBU6JL	GBU4JL	GBU4JL	GBU6JL	GBU6JL	GBU4JL	GBU6JL	---	---	---	---	---	--
6570	---	---	---	---	---	---	---	---	---	---	---	---	EGP20D	---	--
6580	---	---	---	---	---	---	---	---	---	---	---	---	---	SB140	BYV2
6582	---	---	---	---	---	---	---	---	---	---	---	---	EGP20D	---	--
6590	---	---	---	---	---	---	---	---	---	---	---	---	EGP20D	---	--
9500	---	YES	---	---	---	YES	---	---	---	---	---	---	---	---	--
9501	---	YES	---	---	---	YES	---	---	---	---	---	---	---	---	--
9502	---	YES	YES	---	---	YES	YES	---	YES	---	---	---	---	---	--
9503	---	YES	YES	---	---	YES	YES	---	YES	---	---	---	---	---	--
9505	YES	YES	YES	---	---	YES	YES	---	YES	---	---	---	---	---	--
9506	---	---	---	YES	YES	---	---	YES	---	YES	---	---	---	---	--
9509	---	---	---	---	---	---	---	---	---	---	---	---	---	YES	YE

Iw IO	2X2w AUDIO	INDIA SVBW006ER
	---	---
0A	---	---
	T2.5A	T2.5A
	---	---
	---	---
	---	---
	2200/25V	2200/25V
	---	---
/16V	---	---
	---	---
	---	---
	---	---
	---	---
	---	---
	---	---
	---	---
	---	---
	---	---
	YES	YES
	---	---
	---	---
	---	---
	---	---
	---	---
-200	---	EGP20D
	EGP20	EGP20
	EGP20D	EGP20D
	---	---
	---	---
	---	---
	---	---
	---	---
	---	---
	---	---

DIVERSITY TABLE FOR HORIZONTAL DEFLECTION

DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH *						
ITEM	PHILIPS TUBE 25"/28" BLD EAST-WEST	HUA FEI TUBE 25" EAST-WEST	PHILIPS TUBE 25"/28" BLS EAST-WEST	PHILIPS TUBE 25V (26") NO EAST-WEST	PHILIPS TUBE 27V (29") NO EAST-WEST	PHILIPS TUBE 27V (29") EAST-WEST
2451	15n	15n	15n	15n	15n	15n/ 12n China
2457	390n	390n	390n	390n	390n	360n
2463	1n	1n	820p	470p	680p	820p/1n China
2464	---	---	---	---	---	2u2
2465	9n1	9n1	9n1	10n	10n	10n
2466	10n	10n	10n	---	---	---
2467	---	---	---	---	---	22n
2468	18n	18n	18n	---	---	33n
2470	470p	470p	470p	---	---	470p
2471	470n	470n	470n	---	---	---
2472	2u2	2u2	2u2	---	---	2u2
2473	47u	47u	47u	---	---	47u
2475	560n	560n	510n	---	---	---
425 (A4)	56k	56k	56k	150k	120k	150k
3452	33R	33R	33R	22R	22R	22R
3453	---	---	---	4R7	4R7	---
3470	33k	33k	33k	---	---	33k
3471	220k	220k	220k	---	---	---
3472	100k	100k	120k	---	---	82k
3473	1k	1k	1k	---	---	1k
3474	3R3	3R3	3R3	---	---	4R7
3475	3R3	3R3	3R3	---	---	4R7
3477	100R	100R	100R	---	---	100R
3479	330R	330R	330R	---	---	330R
3481/82	Refer to	part list	videocontrol	Depends on	country.	
5445	242253102325	312813820681	242253102324	242253102326	242253102326	242253102326
				USA:242253102327		China:312813820691
5451	33uH	33uH	33uH	27uH	27uH	27uH
5457	312813853111	312813853111	312813853111	312813853241	312813853241	312813853241
5463	---	---	---	---	---	312813834021
5465	312813834011	312813834011	312813834011	---	---	---
5470	311233830531	311233830531	311233830531	---	---	---
5471	---	---	---	---	---	1mH
5480	33uH	56uH	33uH	27uH	27uH	27uH/47uH China
6461	BYW95C/20	BYW95C/20	BYW95C/20	---	---	BYW95C/20
6470	BZX79-C9V1	BZX79-C9V1	BZX79-C9V1	---	---	BZX79-C9V1
6471	1N4148	1N4148	1N4148	---	---	---
6472	1N4148	1N4148	1N4148	---	---	1N4148
6473	BZX79-C39	BZX79-C39	BZX79-C39	---	---	---
7470	STP16NE	STP16NE	STP16NE	---	---	STP16NE
9453	YES	YES	YES	---	---	YES
9460	---	---	---	YES	YES	YES
9461	---	---	---	YES	YES	---
9462	YES	YES	YES	---	---	---
9463	---	---	---	---	---	YES
9464	YES	YES	YES	---	---	---

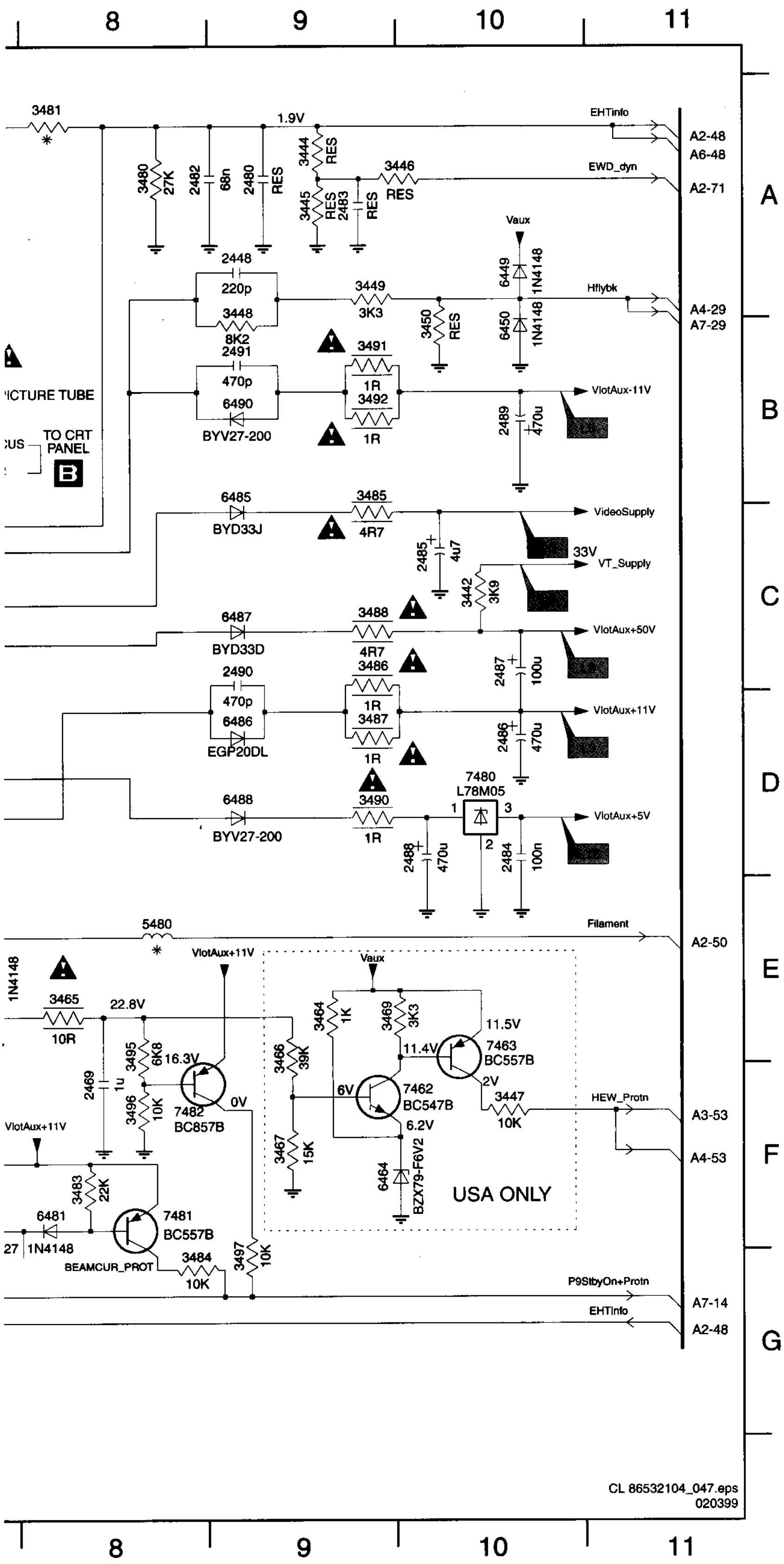
CL 86532104_048.eps
020399



A2 HORIZONTAL DEFLECTION

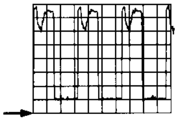
FOR ITEM NR. MARKED WITH *
REFER TO DIVERSITY TABLE
RES = RESERVED

1
2
3
4
5
6
7
A
B
C
D
E
F
G
MainSupply
3482
9453
9451
RES
3453
5451
3451
RES
2451
3452
0255
RES FOR ITV
2450
47u
0220
DIPMATE
TO 0244
OF CRT
PANEL
B
A2-48
EHTinfo
VideoSupply
MainSupplyGnd
2492
RES
A2-50
Filament
HORIZONTAL
DEFLECTION
COIL
0221
VH
5445
EHT
TO
FO
VG
2459
680p
3458
1K
5457
L.LIN
2458
10u
6466
6465
BYD33J BYD33J
3454
33K
2457
10
6
5
11
7
12
8
9
140V
7460
BU1508DX
2463
6460
BY228/20
2465
6461
2466
2467
2468
9461
9460
2475
9462
3462
6K8
2456
47n
2462
47n
3461
4K7
5461
CU15
3463
47R
2461
1n
41.9V
7461
BF819
A4-51
Hdrive
0.4V
3468
1K
5465
CU15
5463
CI-15
6463
9463
2464
9464
VlotAux+11V
3479
330R
6470
BZX79-C9V1
3470
5470
CU15
5471
3471
2471
2470
470p
2472
2u2
3472
2481
470n
3478
220K
6480
BZX79-
MainSupplyGnd
VlotAuxGnd
6471
6473
EW_PROT
3477
100R
9465
2473
47u
A4-52
EWdrive
EWD_dyn
A2-71
3473
1K
7470
STP16NE06
6472
1N4148
3474
3475
3476
RES
* ONLY FOR SETS WITH
E/W CORRECTION


8
9
10
11
A
B
C
D
E
F
G
3481
1.9V
EHTinfo
A2-48
A6-48
3444 RES
3480 27K
2482 68n
2480 RES
3446 RES
EWD_dyn
A2-71
3445 RES
2483 RES
Vaux
6449 1N4148
2448 220p
3448 8K2
3449 3K3
Hflybk
A4-29
A7-29
3450 RES
6450 1N4148
2491 470p
6490 BYV27-200
3491 1R
3492 1R
VlotAux-11V
2489 470u
PICTURE TUBE
TO CRT PANEL
B
6485 BYD33J
3485 4R7
VideoSupply
2485 4u7
33V
VT_Supply
3442 3K9
6487 BYD33D
3488 4R7
VlotAux+50V
2487 100u
2490 470p
6486 EGP20DL
3486 1R
3487 1R
VlotAux+11V
2486 470u
7480 L78M05
6488 BYV27-200
3490 1R
VlotAux+5V
2488 470u
2484 100n
5480
Filament
A2-50
VlotAux+11V
1N4148
3465 10R
22.8V
3495 6K8
16.3V
2469 1u
3496 10K
7482 BC857B
0V
3466 39K
3467 15K
3464 1K
3469 3K3
11.4V
11.5V
7463 BC557B
6V
7462 BC547B
2V
6.2V
3447 10K
HEW_Protn
A3-53
A4-53
6464 BZX79-F6V2
USA ONLY
VlotAux+11V
3483 22K
6481 1N4148
7481 BC557B
BEAMCUR_PROT
3484 10K
3497 10K
P9StbyOn+Protn
A7-14
EHTInfo
A2-48
CL 86532104_047.eps
020399

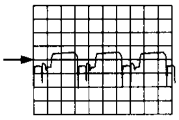
0220	B2
0221	B6
0255	A4
2448	A9
2450	A5
2451	A6
2456	D1
2457	C6
2458	C6
2459	B6
2461	E2
2462	D2
2463	D4
2464	E6
2465	D4
2466	D4
2467	D5
2468	D5
2469	F8
2470	F4
2471	F4
2472	F4
2473	G6
2475	D6
2480	A9
2481	F7
2482	A9
2483	A9
2484	D10
2485	C10
2486	D10
2487	C10
2488	D10
2489	B10
2490	C9
2491	B9
2492	B2
3442	C10
3444	A9
3445	A9
3446	A10
3447	F10
3448	A9
3449	A9
3450	B10
3451	A6
3452	A6
3453	A5
3454	C6
3458	C6
3461	D2
3462	D2
3463	D3
3464	E9
3465	E8
3466	E9
3467	F9
3468	E2
3469	E10
3470	F3
3471	F4
3472	G4
3473	G4
3474	G4
3475	G4
3476	G5
3477	G6
3478	F7
3479	E3
3480	A8
3481	A8
3482	A7
3483	F8
3484	G9
3485	B9
3486	C9
3487	D9
3488	C9
3490	D9
3491	B9
3492	B9
3495	E8
3496	F8
3497	G9
5445	B7
5451	A6
5457	B6
5461	D2
5463	E7
5465	E6
5470	F4
5471	F5
5480	E8
6449	A10
6450	B10
6460	D4
6461	D4
6463	E7
6464	F10
6465	C6
6466	C6
6470	F3
6471	G5
6472	G5
6473	G5
6480	F7
6481	F8
6485	B9
6486	D9
6487	C9
6488	D9
6490	B9
7460	D3
7461	E2
7462	F10
7463	E10
7470	G4
7480	D10
7481	F8
7482	F8
9451	A6
9453	A5
9460	D6
9461	D5
9462	D6
9463	E6
9464	E6
9465	G6

L1 ⏽ HDRIVE



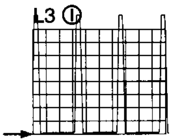
0.1V / div DC
20μs / div

L2



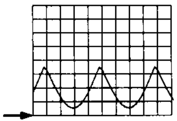
2V / div DC
20μs / div

L3 ⏽



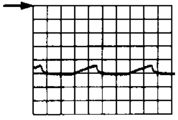
100V / div DC
20μs / div

L4



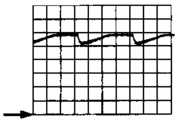
5V / div DC
5ms / div

L5 VLOT AUX-11



2V / div DC
5ms / div

L9 VLOT AUX+11



2V / div DC
5ms / div

L1 ⏻ 0.3V DC

L3 ⏻ 138V DC

L6 190 V DC

L7 ⏽ 32.5V DC

L7 ⏻ 28V DC

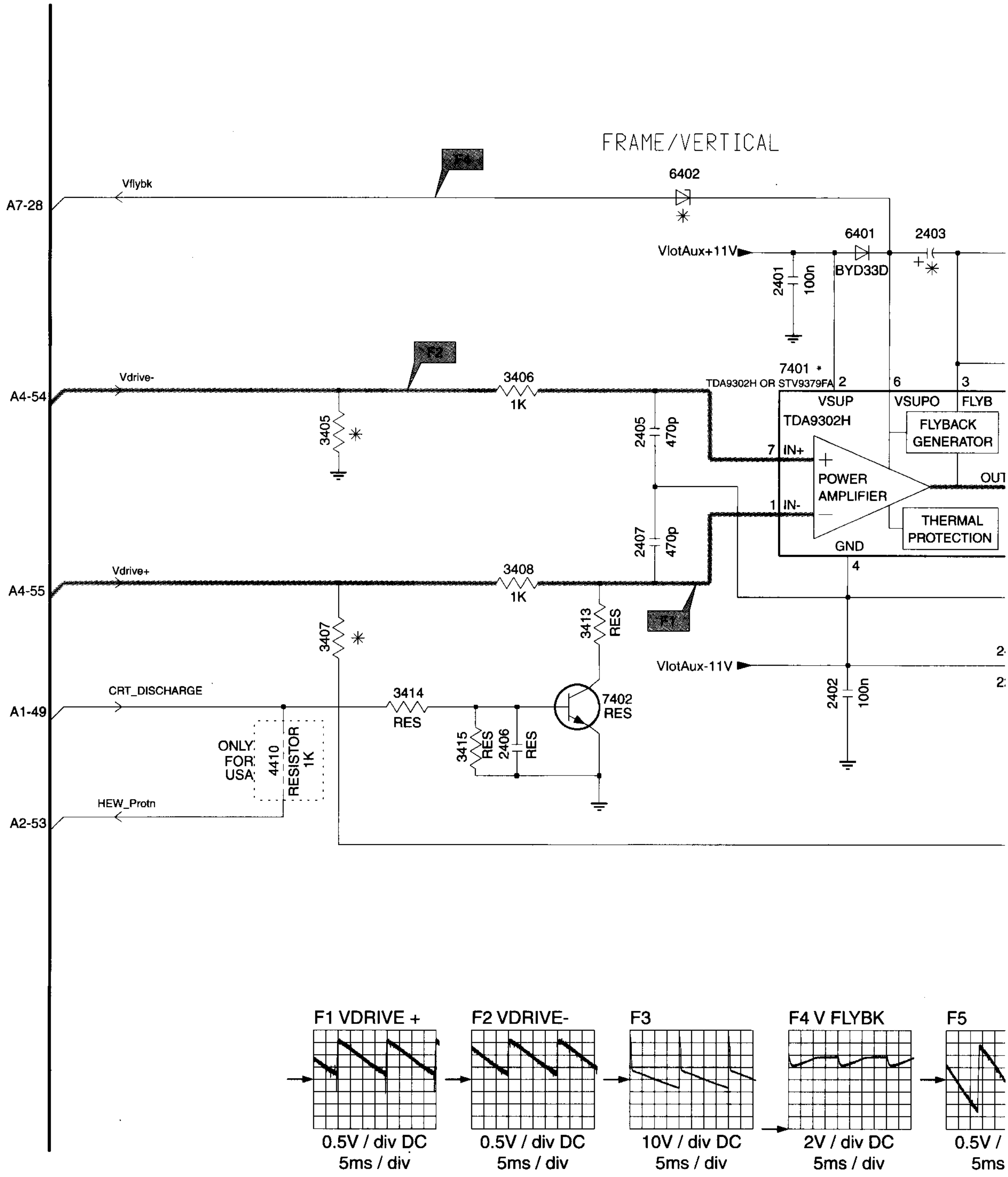
L8 ⏽ 46V DC

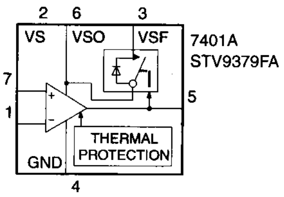
L8 ⏻ 30V DC

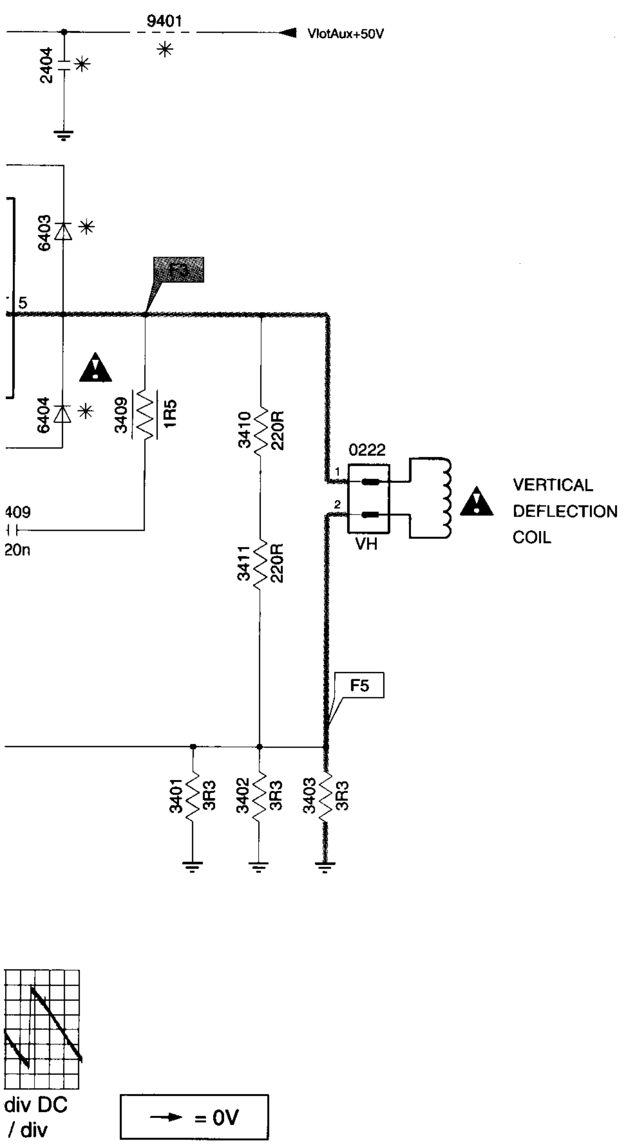
L10 5V DC

→ = 0V

A3 VERTICAL DEFLECTION


FRAME/VERTICAL
A7-28
Vflybk
F4
6402
VlotAux+11V
6401
BYD33D
2403
2401
100n
A4-54
Vdrive-
F2
3406
1K
3405
2405
470p
7401
TDA9302H OR STV9379FA
2
6
3
VSUP
VSUPO
FLYB
TDA9302H
FLYBACK GENERATOR
7
IN+
POWER AMPLIFIER
OUT
1
IN-
THERMAL PROTECTION
GND
4
2407
470p
A4-55
Vdrive+
3408
1K
F1
3407
3413
RES
VlotAux-11V
2402
100n
A1-49
CRT_DISCHARGE
3414
RES
7402
RES
3415
RES
2406
RES
ONLY FOR USA
4410
RESISTOR 1K
A2-53
HEW_Protn
F1 VDRIVE +
0.5V / div DC
5ms / div
F2 VDRIVE-
0.5V / div DC
5ms / div
F3
10V / div DC
5ms / div
F4 V FLYBK
2V / div DC
5ms / div
F5
0.5V /
5ms


2
6
3
VS
VSO
VSF
7401A
STV9379FA
7
1
5
GND
THERMAL
PROTECTION
4


9401
VlotAux+50V
2404
6403
5
6404
3409
1R5
3410
220R
0222
1
2
VH
VERTICAL
DEFLECTION
COIL
409
20n
3411
220R
F5
3401
3R3
3402
3R3
3403
3R3
div DC
/ div
= 0V

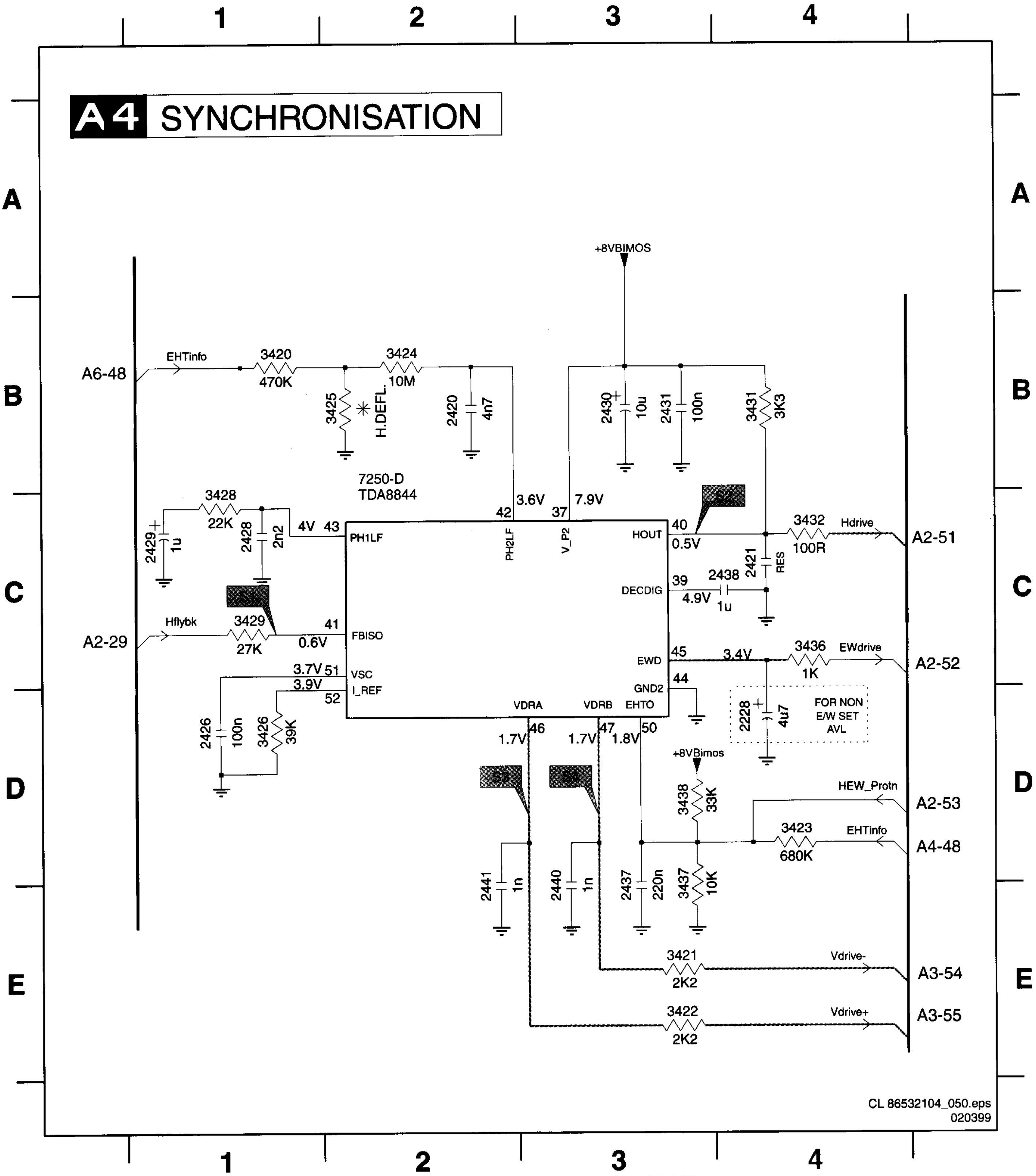
DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH *

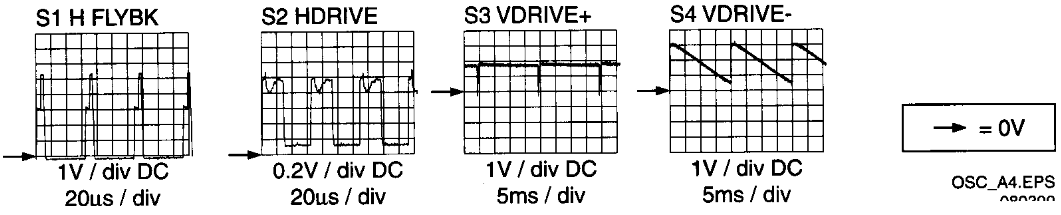
ITEM	TUBES WITH SADDLE COIL (BLD / BLS / HF)	TUBES WITH TOROID COIL (25V / 27V / NON PH.)
2403	100u	---
2404	---	220n
3405	2k2	1k8
3407	2k2	1k8
6402	BZX79-C18	BZX79-C33
6403	---	BYD33D
6404	---	BYD33D
7401	TDA9302H	STV9379FA
9401	---	YES

0222	E8
2401	C5
2402	E6
2403	C6
2404	C7
2405	D5
2406	E4
2407	D5
2409	E7
3401	F7
3402	F8
3403	F8
3405	D3
3406	C4
3407	E3
3408	D4
3409	D7
3410	E8
3411	E8
3413	E4
3414	E3
3415	E4
4410	E3
6401	C6
6402	B5
6403	D7
6404	D7
7401	C5
7401A	B11
7402	E4
9401	C7

CL 86532104_049.eps
020399

2228 D4	2426 D1	2430 B3	2438 C4	3420 B1	3423 D4	3426 D1	3431 B4	3437 E3
2420 B2	2428 C1	2431 B3	2440 E3	3421 E3	3424 B2	3428 C1	3432 C4	3438 D3
2421 C4	2429 C1	2437 E3	2441 E2	3422 E3	3425 B2	3429 C1	3436 C4	7250-D B2


1
2
3
4
A
B
C
D
E
A4 SYNCHRONISATION
+8VBIMOS
A6-48
EHTinfo
3420
470K
3424
10M
3425
H.DEFL.
2420
4n7
2430
10u
2431
100n
3431
3K3
7250-D
TDA8844
3428
22K
2429
1u
2428
2n2
4V
43
42
3.6V
37
7.9V
S2
40
0.5V
3432
100R
Hdrive
A2-51
PH1LF
PH2LF
V_P2
HOUT
2421
RES
39
4.9V
2438
1u
DECDIG
S1
Hflybk
A2-29
3429
27K
41
0.6V
FBISO
45
3.4V
3436
1K
EWdrive
A2-52
EWD
3.7V
51
VSC
3.9V
I_REF
52
44
GND2
2426
100n
3426
39K
VDRA
VDRB
EHTO
2228
4u7
FOR NON E/W SET AVL
46
1.7V
47
1.7V
1.8V
50
+8VBimos
S3
S4
3438
33K
HEW_Protn
A2-53
3423
680K
EHTinfo
A4-48
2441
1n
2440
1n
2437
220n
3437
10K
3421
2K2
Vdrive-
A3-54
3422
2K2
Vdrive+
A3-55
CL 86532104_050.eps
020399
1
2
3
4



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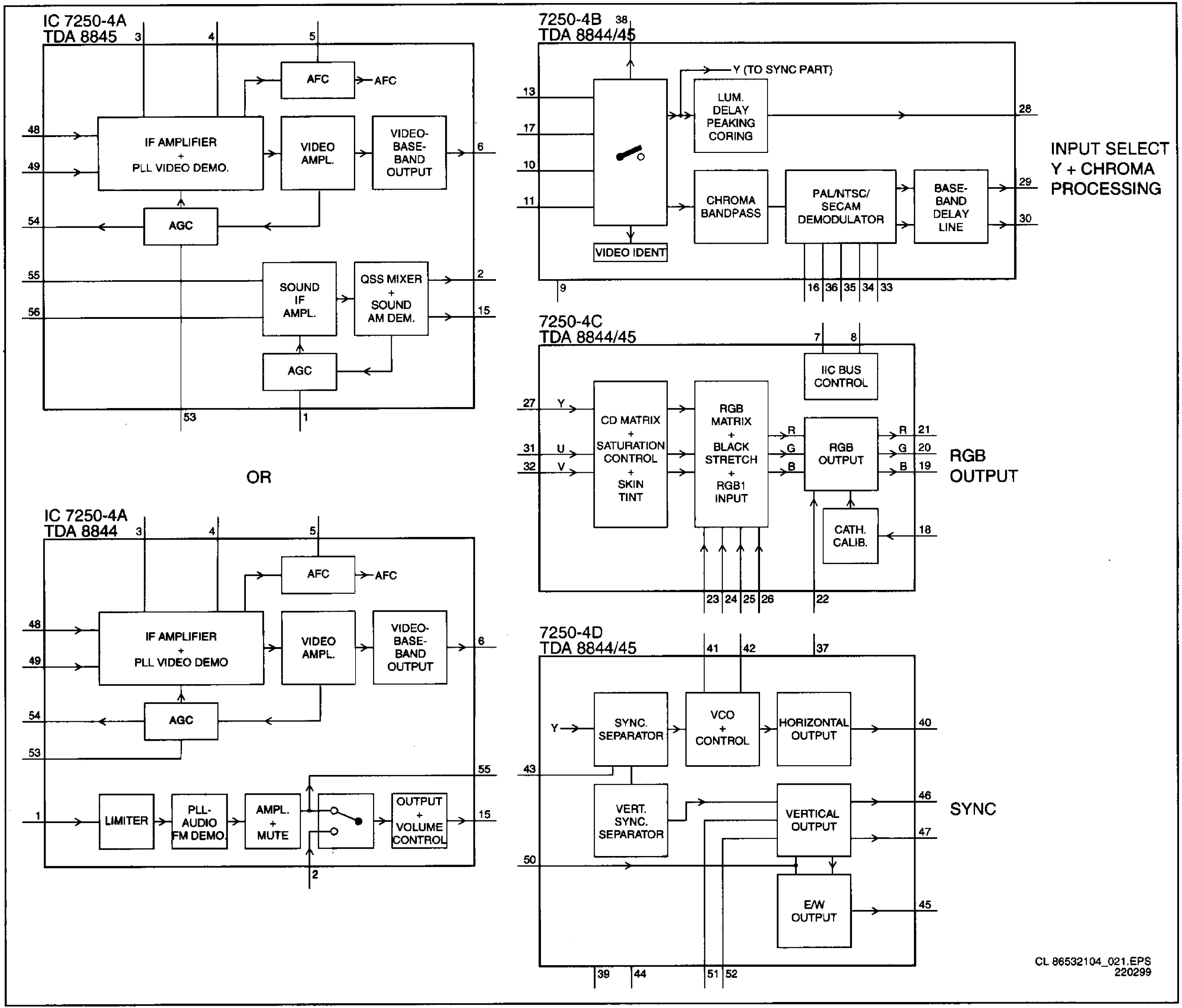
080399


IC 7250-4A
TDA 8845
3
4
5
AFC
AFC
48
49
IF AMPLIFIER + PLL VIDEO DEMO.
VIDEO AMPL.
VIDEO-BASE-BAND OUTPUT
6
54
AGC
55
56
SOUND IF AMPL.
QSS MIXER + SOUND AM DEM.
2
15
AGC
53
1
OR
IC 7250-4A
TDA 8844
3
4
5
AFC
AFC
48
49
IF AMPLIFIER + PLL VIDEO DEMO
VIDEO AMPL.
VIDEO-BASE-BAND OUTPUT
6
54
AGC
53
55
1
LIMITER
PLL-AUDIO FM DEMO.
AMPL. + MUTE
OUTPUT + VOLUME CONTROL
15
2
7250-4B
TDA 8844/45
38
Y (TO SYNC PART)
13
17
10
11
LUM. DELAY PEAKING CORING
28
CHROMA BANDPASS
PAL/NTSC/ SECAM DEMODULATOR
BASE-BAND DELAY LINE
29
30
VIDEO IDENT
9
16
36
35
34
33
INPUT SELECT Y + CHROMA PROCESSING
7250-4C
TDA 8844/45
7
8
IIC BUS CONTROL
27
Y
31
U
32
V
CD MATRIX + SATURATION CONTROL + SKIN TINT
RGB MATRIX + BLACK STRETCH + RGB1 INPUT
R
G
B
RGB OUTPUT
R
G
B
21
20
19
RGB OUTPUT
CATH. CALIB.
18
23
24
25
26
22
7250-4D
TDA 8844/45
41
42
37
Y
SYNC. SEPARATOR
VCO + CONTROL
HORIZONTAL OUTPUT
40
43
VERT. SYNC. SEPARATOR
VERTICAL OUTPUT
46
47
SYNC
50
E/W OUTPUT
45
39
44
51
52

CL 86532104_021.EPS
220299